

حمل الآن

مجانا وحصريا

المراجعة رقم (1)

الترم الثاني





Final Revision

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★ **(1) Write the scientific term:**

- 1 Non-audible waves whose frequencies are less than 20 Hz. (.....)
- 2 Maximum displacement of the oscillating body away from its rest position. (.....)
- 3 The transfer of pollen grains from the anthers of a flower to the stigmas of another flower of the same kind. (.....)
- 4 The measuring unit of noise intensity. (.....)
- 5 The flower that has four whorls. (.....)
- 6 The ability of the medium to refract light. (.....)
- 7 The flower which contains both androecium and gynoecium. (.....)
- 8 The motion produced as a result of the vibration of the particles of the medium at a certain moment in a definite direction. (.....)
- 9 The motion of an oscillating body when it passes by a fixed point on its path two successive times in the same direction. (.....)
- 10 It is an external stimulus that affects the ear and causes hearing. (.....)
- 11 The process of transfer pollen grains from the flower anther to the stigma. (.....)
- 12 A tool is used to determine the pitch of an unknown tone. (.....)
- 13 A group of green leaves each of them is called sepal. (.....)
- 14 The cell resulting from the fusion of the pollen grain and the ovum nuclei. (.....)
- 15 The reflection in which light rays recoil in many different directions when falling on the rough surface. (.....)
- 16 The amount of light that falling perpendicular to a unit area of a surface in one second. (.....)

- 17 The property of sound by which the human ear can be distinguish between sharp and harsh sounds (.....)
- 18 The time taken by the oscillating body to make one complete oscillation. (.....)
- 19 The highest point in the transverse wave. (.....)
- 20 The measuring unit of sound intensity (.....)
- 21 The number of complete oscillations made by the body in one second. (.....)
- 22 It is a natural phenomenon that takes place on the desert roads at noon especially in the summer times. (.....)
- 23 The change of light path when it travels from a transparent medium to another. (.....)
- 24 A disturbance that propagates and transfers energy along the direction of propagation (.....)
- 25 The angle between the emergent light ray and the normal. (.....)
- 26 Angle of incidence= Angle of reflection (.....)
- 27 The periodic motion of an oscillating body around its rest point, where the motion is repeated through equal intervals of time. (.....)
- 28 Waves that need medium to travel and can't travel in space (.....)
- 29 A property by which the human ear can distinguish between strong and weak sounds. (.....)
- 30 Rebouncing of light waves in the same medium due to meeting a reflecting surface. (.....)
- 31 An angle between the incident light ray and the normal at the point of incidence on the interface. (.....)
- 32 The flower that contains the four whorls (.....)
- 33 The point of the lowest density and pressure in the longitudinal wave (.....)
- 34 Bodies don't allow the passage of light through them. (.....)
- 35 A new method to produce large numbers of plants from small parts of it. (.....)

- 36 A floral whorl in the flower, whose function to attract insects as it is colorful and scented. (.....)
- 37 The time needed by the oscillatory body to make a complete oscillation. (.....)
- 38 Waves of frequencies ranging from 20 Hz to 20000 Hz. (.....)
- 39 The intensity of sound at a certain point is inversely proportional to the square of the distance between this point and the sound. (.....)
- 40 The scientist who discovered that the energy of photon depends on its frequency. (.....)
- 41 The ability of the medium to refract light rays. (.....)
- 42 Fusion of the nucleus of the male cell with the nucleus of the female cell. (.....)
- 43 The disturbance that propagates and transfers energy in the direction of propagation (.....)
- 44 The area in the longitudinal wave, at which the medium particles are of the highest density and pressure (.....)
- 45 The distance that a wave travels in one second. (.....)
- 46 The product of Planck's constant times the frequency of photon. (.....)
- 47 A modern way of multiplying a small part of the plant to get a large number of plants. (.....)
- 48 The ratio between the speed of light in air and its speed in a transparent medium. (.....)
- 49 Wave consists of crests and troughs. (.....)
- 50 Short stem where the leaves developed and modified into reproductive organs. (.....)
- 51 The waves which need a medium to propagate. (.....)
- 52 The reflection in which the light rays recoil in many directions, when falling on a rough surface. (.....)
- 53 A phenomenon that appears in the desert as a result of reflection and refraction of light. (.....)

- 54 The property by which the ears can distinguish between sounds with respect to the nature of the source even if they are equal in pitch and intensity. (.....)
- 55 The motion produced as a result of the vibration of the particles of the medium at a certain moment and in a certain direction (.....)
- 56 The angle between the reflected ray and the normal at the incidence point on the reflecting surface. (.....)
- 57 The ability of the medium to refract light rays. (.....)
- 58 The number of complete oscillations in one second. (.....)
- 59 Sound waves their frequency is more than 20000 Hz. (.....)
- 60 Incident ray, reflected ray and normal line, all locate in one plane which is perpendicular on reflecting surface. (.....)
- 61 An instrument used to determine the frequency of unknown sound tone. (.....)
- 62 A design composed of a tube, where water moves in the form of circular waves for treating sprains and cramps. (.....)
- 63 Sound waves have frequency less than 20 Hz. (.....)
- 64 A male hormone that responsible for the appearance of secondary sex characters (.....)
- 65 The fusion of the male gamete with the female gamete.
- 66 A tube that helps to transfer the sperms from testes to urethra.
- 67 Two glands of oval shape that produce male cells (gametes) in human.
- 68 A fluid secreted by male genital associated glands.
- 69 The hormone which is responsible for continuity of pregnancy.
- 70 Two glands exist inside scrotal sac in male.
- 71 Two tubes of funnel shaped opening provided with finger like projection and lined with cilia.

***(2) Choose the right answer:**

1. The zygote contains of the genetic material of the sperm.
a. half b. double c. quarter d. three times
2. The light ray refracts the normal when it travels from air to glass.
a. near to b. away from c. perpendicular to d. along
3. All the following are from the factors affecting sound intensity except the
a. amplitude. b. frequency. c. density of medium. d. wind direction.
4. The ovule after fertilization becomes a
a. seed. b. seed coat. c. fruit. d. coat of fruit.
5. The amplitude of the simple pendulum is of a complete vibration.
a. four times. b. a quarter. c. a half. d. double.
6. The quantum of energy of green light is the quantum of energy of yellow light.
a. greater than b. equal to c. less than d. no correct answer
7. Light waves are waves.
a. mechanical transverse b. electromagnetic longitudinal
c. electromagnetic transverse d. mechanical longitudinal
8. A sound wave travels in air with velocity 330 m/s and has a wavelength of 0.1 m, its frequency is
a. 330 KHz. b. 3300 Hz. c. 33 KHz. d. 330 Hz.
9. From the typical flowers is
a. palm. b. maize. c. petunia. d. pumpkins.
10. The absolute refractive index of water is
a. 0.5 b. 0.8 c. 0.33 d. 1.33
11. The ovum containsof the genetic material of the plant species.
a. double b. half c. quarter d. all
12. The artificial vegetative reproduction is done in plants by
a. grafting. b. cutting. c. tissue culture. d. all the previous.
13. When the incident light ray reflects on itself, the angle of incidence equals
a. 0° b. 90° c. 120° d. 180°
14. When the distance between the source of light and the surface of a wall is doubled, the light intensity on the surface
a. decreases to a quarter. b. increases to double.
c. remains constant. d. no correct answer.
15. The speed of the ball of the simple pendulum as we move away from the rest position.
a. doesn't affect b. decreases c. is doubled d. no correct answer

16. The color light in the spectrum colours has the highest deviation.

- a. white b. red c. violet d. yellow

17. The corolla leaves are called

- a. petals. b. carpels. c. stamens. d. sepals.

18. Regular reflection appeared on

- a. the skin. b. a plan mirror. c. a tree leaf. d. a piece of wood.

19. Flowers pollinated by air characterized by all of the following except

- a. hanged anthers. b. feathery like stigmas.
c. scented petals. d. light pollen grains.

20. If the distance between the center of the third compression and that of the fifth compression is 20 cm, the wavelength of this wave is

- a. 40 cm. b. 20 cm. c. 10 cm. d. 5 cm.

21. Pollen grains are formed inside the of the flower.

- a. carpel b. anther c. ovary d. calyx

22. The photon energy= Plank's constant x

- a. wavelength. b. velocity. c. amplitude. d. frequency.

23. The distance between two successive compressions is called

- a. frequency. b. periodic time. c. wavelength. d. velocity.

24. If the frequency of an oscillating body is 10 Hz, so the periodic time is

- a. 10 sec. b. 0.01 sec. c. 0.1 sec. d. 1 sec.

25. The sound of frequency 500 Hz is than the sound of frequency 100 Hz.

- a. stronger b. sharper c. weaker d. harsher

26. When the distance between the light source and a certain surface is doubled, the light intensity on the surface

- a. decreases to quarter. b. increases four times.
c. is doubled. d. remains constant.

27. The angle of incidence of light is its angle of reflection.

- a. larger than b. smaller than c. equal to d. no correct answer

28. After fertilization, the ovary develops to become a

- a. fruit. b. sepal. c. petal. d. flower.

29. Tulip is an example for flower.

- a. female b. male c. bisexual

30. After fertilization, the develops to become a seed.

- a. flower b. ovary c. ovule

31. Sound of frequency 200 Hz is than sound of frequency 100 Hz.

- a. sharper b. stronger c. harsher d. weaker

32. If the angle between the incident light ray and the reflected light ray is 90° , so the angle of incidence equals
- a. 0° b. 90° c. 45° d. no correct answer
33. The light waves are waves.
- a. mechanical transverse b. electromagnetic transverse
c. mechanical longitudinal d. electromagnetic longitudinal
34. The floral whorl, which is absent in the female flower is
- a. calyx. b. corolla. c. androecium. d. gynoecium.
35. The sound velocity is maximum in
- a. vacuum. b. gases. c. liquids. d. solids.
36. The periodic time of a tuning fork which makes 240 waves in one minute equals
- a. 1 sec. b. 4 sec. c. 0.5 sec. d. 0.25 sec.
37. waves are longitudinal waves.
- a. Water b. Light c. Sound d. Radio
38. If the angle between the incident light ray and the reflected light ray is 30° so, the angle of reflection is
- a. 30 b. 15 c. 60 d. 40
39. Pollen grains are produced from the
- a. ovary. b. calyx. c. anther. d. gynoecium.
40. All the following are factors affecting sound intensity except
- a. amplitude of vibration. b. frequency.
c. medium density. d. wind direction.
41. A medium that prevents light to pass through it is called medium.
- a. transparent b. translucent c. opaque d. no correct answer
42. The submerged object in water as a fish is seen in an apparent position slightly above its real position due to of the light rays.
- a. refraction b. reflection c. analysis d. total internal reflection
43. From the methods of cross pollination is
- a. air. b. insects. c. human. d. all of them.
44. White light analyzes into spectrum colours.
- a. 3 b. 5 c. 7 d. 9
45. The measuring unit of wave velocity is
- a. meter. b. meter/sec. c. Hz. d. sec.
46. If the angle between the incident light ray and the reflected light ray is 40° , so the angle of reflection equals
- a. 90° b. 80° c. 20°

- 47. The doctors use waves with a frequency to break down kidney stones.**
a. less than 20 Hz b. 20 Hz c. more than 20 KHz
- 48. Sound intensity in air is that in carbon dioxide.**
a. less than b. more than c. equal to
- 49. The absolute refractive index of any material is always one.**
a. less than b. more than c. equal
- 50. In reflection, the reflected rays are reflected in many directions.**
a. uniform b. irregular c. both (a) and (b)
- 51. All of these sounds are of uniform frequency except the sound of**
a. piano. b. violin. c. loudspeakers. d. guitar.
- 52. The highest point in the transverse wave is called**
a. trough. b. compression. c. crest. d. rarefaction.
- 53. All the following are electromagnetic waves except waves.**
a. light b. sound c. infrared d. radio
- 54. The voice of Adam differs from that of Sara because they are different in**
a. age. b. intensity. c. pitch. d. kind.
- 55. The quantum of energy of green light is the quantum of energy of yellow light.**
a. greater than b. equal to c. smaller than d. no correct answer
- 56. media do not allow light to pass through it.**
a. Transparent b. Translucent c. Opaque d. no correct answer
- 57. The floral whorl which is absent in the female flower is**
a. calyx. b. corolla. c. androecium. d. gynoecium.
- 58. If the angle between the incident light ray and the reflected light ray is 90° , so the angle of reflection will be equal**
a. 0° b. 30° c. 45° d. 90°
- 59. Plank's constant = the photon energy divided by photon**
a. frequency. b. density. c. wavelength. d. amplitude.
- 60. Doctors use waves of a frequency to break down kidney and ureter stones.**
a. more than 20 Hz b. less than 20 KHz
c. 20 Hz d. more than 20 KHz
- 61. The produced fruit by grafting belongs to the type of the**
a. scion. b. cut. c. stock. d. bud.
- 62. The maximum displacement made by the oscillating body away from its original position is**
a. amplitude. b. frequency. c. periodic time. d. complete.

63. The distance between two successive troughs or two successive crests in the transverse wave is

- a. wavelength. b. amplitude. c. frequency. d. wave velocity.

64. Pollination in colored flowers takes place by

- a. insects. b. man. c. water. d. air.

65. The sound velocity is measured in unit.

- a. Hertz b. m/sec. c. decibel d. metre

66. The human skin is considered as a/an medium.

- a. transparent b. opaque c. translucent d. no correct answer

67. If the light speed in air is higher than that in another transparent medium, so the refractive index is

- a. zero b. 1 c. more than 1 d. less than 1

68. Two gears of Savart's wheel rotate at a same velocity, if the number of teeth of the first gear is 90 teeth and the number of the second is 60 teeth, then the ratio between their frequencies is

- a. 1 : 2 b. 3 : 2 c. 2: 1 d. 5: 2

69. Artificial vegetative reproduction by cutting can be done in

- a. peach. b. palm. c. grapes. d. olive.

70. The measuring unit of noise intensity is

- a. decibel. b. Hz. c. watt/m² d. metre.

71. All of the following plants reproduce sexually except.....

- a. bean plant. b. pea plant. c. potato. d. olive plant.

72. When distance between sound source and the ear is doubled, the sound intensity

- a. decrease to its half b. increases twice.
c. decreases to its quarter. d. increases four times

73. The male reproductive organ in the flower is

- a. gynoecium. b. corolla. c. calyx. d. androecium.

74. The light ray refract the normal when it travels from air to glass.

- a. near to b. away from c. perpendicular to d. along

75. A pencil seems broken when it is placed in a glass cup of water due to of light.

- a. critical angle b. mirage c. refraction d. reflection

76. An organ which is responsible for formation of ova in the flower is

- a . another. b. ovary. c. corolla. d. stamen.

77. Sound wave travels in air with velocity of 340 m/s. and its frequency is 20 Hz. The wavelength of it is
- a . 14 cm. b. 170 cm. c. 170 m. d. 1700 cm.
78. The plant ovary produces
- a. Pollen grains. b. ovum. c. sperms. d. ovule.
79. is a short stem where leaves developed and modified into reproductive organs.
- a. Tuber b. Flower c. Stock d. Scion
80. The colorful and scented flower leaves are called
- a. sepals. b. stamens. c. carpels. d. petals.
81. The human ear cannot hear sound of frequency
- a. 50 Hz. b. 300 Hz. c. 10 Hz.
82. The male reproductive organ in flower is
- a. gynoecium. b. androecium. c. corolla.
83. The ovum contains of the genetic material of the plant species.
- a. half b. all c. quarter
84. The artificial vegetative reproduction is done by
- a. cutting. b. grafting. c. all the previous.
85. Velocity of sound in air equals m/s.
- a. 340 b. 1500 c. 3×10^8
86. From artificial vegetative reproduction
- a. cutting. b. grafting. c. tissue culture. d. (a) , (b) and (c).
87. Calyx consists of a group of green leaves each of them is called
- a. sepal. b. carpel. c. petal. d. micropyle.
88. The result of multiplying frequency of an oscillating body by its periodic time equals
- a. one. b. negative value. c. constant value. d. variable value.
89. A natural phenomenon takes place on the desert roads at noon due to reflection and refraction of the light
- a. lightning. b. thunder. c. mirage. d. rainbow.
90. After fertilization, the ovule develops into
- a. ovary. b. fruit. c. seed. d. seed coat.
91. We can hear all of the following sounds except
- a. 40 Hz. b. 60 KHz. c. 10 KHz. d. 60 Hz.

92. Light refraction is due to the difference in through different media.

- a. sound intensity
- b. nature of the surface
- c. light velocity
- d. all the previous answer.

93. The absolute refractive index of any material is always

- a. more than one.
- b. less than one.
- c. equal to one.
- d. equal zero.

94. The zygote contains of the genetic material of the plant species.

- a. half
- b. all
- c. quarter
- d. third

95. The artificial vegetative reproduction is done in plants by

- a. cutting.
- b. grafting.
- c. tissue culture.
- d. all the previous.

96. The flower is a modified

- a. stem.
- b. leaf.
- c. root.
- d. branch.

97. The transverse waves consists of

- a. crests and compressions.
- b. compressions and rarefactions.
- c. crests and troughs.
- d. rarefactions and troughs.

98. Sound of different musical instruments can be differentiated from each other by

- a. harmonic tones.
- b. fundamental tone.
- c. sound intensity.
- d. sound pitch.

99. The submerged object in water is seen in an apparent position slightly above its real position due to of light.

- a. reflection
- b. interference
- c. diffraction
- d. refraction

100. The male genital system consists of vas deferens, penis and

- a. urethra
- b. cervix
- c. vagina
- d. endometrium

101. hormone in males is responsible for appearance of secondary sex characters

- a. testosterone
- b. progesterone
- c. insulin
- d. estrogen

102. All of the following are organs of male reproductive system, except

- a. vas deferens.
- b. uterus.
- c. testes.
- d. penis.

103. The ovary in female human releases one ripe ovum every days.

- a. 14
- b. 28
- c. 34
- d. 56

104. hormone is responsible for the continuity of pregnancy.

- a. Testosterone
- b. Estrogen
- c. Thyroxin
- d. Progesterone

105. The sperm consists of, middle part and tail.

- a. head
- b. prostate
- c. cilia
- d. membrane

***(3) Complete the following:**

1. is a transparent medium of light but wood is a(an) medium.
2. The ovule inside the ovary is converted into after fertilization.
3. waves are used in breaking the stones of kidneys and ureters.
4. Sharp tones have frequencies, while rough tones have frequencies.
5. is the male reproductive organ in the plant, while is the female reproductive organ in the plant.
6. Harmonic tones are lower in and higher in than fundamental tones.
7. In transverse wave, the particles of the medium vibrate the direction of wave propagation.
8. In the flower, the corolla consists of colored leaves, each leaf is called
9. The ratio between the velocity of light through air to the velocity of light through another transparent medium is known as
10. The outer whorl of the flower is the and it consists of leaves called
11. Angle of is the angle between the refracted light ray and
12. The measuring unit of noise intensity is, while the measuring unit of the periodic time is
13. The crest in the wave is equivalent to the in the longitudinal wave.
14. The velocity of the oscillating body reaches its value when it passes its rest position.
15. Transverse wave consists of and
16. When light travels from a medium of optical density to another of optical density, it refracts far from the normal line.
17. Types of pollination are and
18. Fertilization is process of fusion the male cell nucleus with nucleus to form
19. If the angle between the incident light ray and the reflecting surface is 25° , so the angle of reflection =
20. The frequency of sonic waves ranges between Hz to KHz.
21. The voice of women is pitched, while the voice of men is pitched.
22. The cell produced from the fusion of pollen grain with the ovum nucleus is called

23. Sound is the property by which the ear can distinguish between harsh and sharp sounds.
24. Waves are classified according to the ability to propagate and transfer energy into and waves.
25. Complete oscillation consists of displacements (amplitudes).
26. Max Planck proved that the energy of light wave consists of energy quanta known as
27. The calyx of the flower consists of green leaves called
28. Stamen consists of anther and
29. Savart's wheel is used to determine the of an unknown tone.
30. The stigmas are feathery like and sticky to
31. is the reflection of light rays when they meet a rough surface.
32. A pencil partially immersed in water appears as being
33. The periodic time of an oscillating body which make 480 oscillations in one minute equals
34. The measuring unit of noise intensity is , while is the measuring unit of the amplitude.
35. After fertilization, the ovary grows forming the , while the ovule converted into
36. The glass prism is used to analyses the light into colors.
37. As the amplitude increases, the sound intensity
38. Infrasonic waves are sound waves of frequencies less than Hz.
39. When a light ray falls perpendicular on a reflecting surface the angle of reflection equals
40. Sound pitch is a property by which ear can distinguish between and
41. Sound wave velocity = x
42. motion is the motion which is regularly in equal periods of time.
43. Sound travels through air as pulses of and
44. In the uniform reflection, the light rays reflect in direction when they fall on a surface.

45. The energy of the photon is proportional to the of the light wave.
46. color has the longest wavelength, while has the shortest wavelength.
47. If the vertical distance between crest and trough is 4 cm, the amplitude equals cm.
48. are transverse waves, while waves may be longitudinal or transverse waves.
49. Oscillatory motion and motion is from motion.
50. Light intensity is proportional to of the distance between the surface and the source.
51. The flower of pumpkins is flower, while the flower of tulip is flower.
52. When you look at a coin in a glass of water, its position appears to be lower than the position.
53. The maximum displacement done by the oscillating body away from its rest point is called
54. Stamen of the flower consists of and
55. The measuring unit of the frequency is but the measuring unit of the noise intensity is
56. Pollen grains which spread by wind are produced by numbers, and their weight is
57. Sounds can be classified into two groups, musical tones of frequency and noises of frequency.
58. The human skin is considered medium, while pure glass is medium for light.
59. The Sound is from waves that can't travel through.....
60. In a flower, the calyx consists of, but group of petals form
61. The high-pitched sound waves have high and small
62. There are two types of periodic motion which are motion and motion.

63. Light is the change of light path when it travels from a transparent medium to another one of different
64. The light velocity is the distance
65. Light travels through the media in lines.
66. Sound waves are longitudinal waves because particles of the medium vibrate the direction of wave propagation.
67. The light reflection is classified in two types which are and
68. From properties of light is that light travels in lines.
69. The frequency of the oscillation body is measured by unit called
70. The measuring unit of sound intensity is while that of noise intensity is
71. The angle of incidence the angle of reflection.
72. In the waves, the particles of the medium vibrate perpendicular to the direction of wave propagation.
73. The are small cells that formed in the anther of the flower.
74. The sound intensity at a point is proportional to the square of the distance between this and the source of sound.
75. Each carpel consists of a swollen part called ovary which connects with tube called and ending in.....
76. The frequency of sonic waves ranges between..... Hz and Hz
77. The amplitude equals of a complete oscillation.
78. Sound is produced from of bodies.
79. The natural vegetative reproduction in potatoes is done by.....
80. Frequency of sonic wave, ranges between Hz and Hz.
81. is considered the simplest form of oscillatory motion.
82. Calyx of a flower consists of green leaves called but corolla consists of colored leaves called
83. From the artificial vegetative reproduction in plant are and

84. If the angle between the incident light ray and reflected light ray is 100° , so the angle of reflection =
85. The sound velocity is measured in unit while the sound intensity is measured in
86. The bisexual flower contains and, but the male flower contains only.
87. In reflection, rays are reflected in one direction.
88. The complete oscillation include 4 displacements, each one is called.....
89. sound wave accompany the blowing of storms before rainfall.
90. After fertilization the ovary of the flower grows forming the.....
91. Male gametes in man are known as ,while the female gametes are known as
92. hormone which is responsible for the appearance of secondary female sex characters.
93. The hormone in male and hormone in female are responsible for appearance of secondary characters.
94. The human zygote results from the fusion of and
95. Testes produce and secrete hormone.

✱(4) Correct the underlined words:

1	Sound pitch is increased by <u>decreasing</u> the frequency.	(.....)
2	A complete oscillation comprises of <u>two</u> amplitudes.	(.....)
3	The angle between the incident light ray and the reflected light ray = 100° , so the angle of reflection = <u>60°</u>	(.....)
4	Reproduction by tubers can be used in <u>apples</u>	(.....)
5	The human skin is considered as <u>translucent</u> medium.	(.....)
6	The energy of light quantum is directly proportional to its <u>wavelength</u>	(.....)
7	The big colored flowers are pollinated by <u>air</u>	(.....)
8	The crest in the transverse wave is equivalent to the <u>bottom</u> in the longitudinal wave	(.....)
9	We see the submerged objects in water in a <u>lower</u> position than its real position	(.....)
10	Fusion between the pollen grain and the ovum is called <u>pollination</u> .	(.....)
11	Changing the light ray path when it faces a transparent object is considered <u>light reflection</u>	(.....)
12	The light travels in <u>curved</u> lines.	(.....)
13	The absolute refractive index of any material is always <u>smaller than one</u>	(.....)
14	In pollination by <u>water</u> the flower has feathery like and sticky stigma	(.....)
15	The movement of the clock pendulum is an example of <u>wave motion</u> .	(.....)
16	The sound intensity <u>decreases</u> , when the source of sound touches an empty box	(.....)
17	<u>Yellow</u> colour is the first colour in spectrum colors.	(.....)
18	Each carpel consists of ovary, <u>filament</u> and stigma	(.....)
19	<u>Sonic</u> waves are used in sterilization of milk.	(.....)
20	If the distance between the first crest and the second crest on the wave propagation is 10 cm, then the wavelength of this wave is <u>20</u> cm.	(.....)
21	Human ear can distinguish between sound of frequencies ranging between <u>10</u> : 20000 Hz.	(.....)
22	<u>Ovule</u> consists of stigma, style and ovary.	(.....)
23	Particles of the medium vibrate along the direction of the wave propagation in the <u>transverse</u> wave	(.....)

24	The angle of incident of a light ray is greater than the angle of reflection.	(.....)
25	Rainbow phenomenon takes place on desert roads at noon specially in summer.	(.....)
26	Colored sepals attract insects for pollination.	(.....)
27	Speed of sound in water is slower than in air .	(.....)
28	Reproduction by tubers can be used in apples and pears .	(.....)
29	Unit of sound intensity is Hertz .	(.....)
30	Harmonic tones accompanying the fundamental tone lower in pitch .	(.....)
31	The wall of the ovule after fertilization forms the wall of the fruit.	(.....)
32	Reproduction by tuber happens in orange	(.....)
33	When the sound source touches a resonance box, the sound intensity decreases .	(.....)
34	Grafting by wedge in which scion is attached to stock.	(.....)
35	Oscillatory motion is the motion that is repeated regularly in equal time.	(.....)
36	Light refraction is rebounding of light wave in the same medium.	(.....)
37	Sweet potatoes is reproduced by grafting .	(.....)
38	The sound intensity decreases by increasing the density of the medium and vice versa.	(.....)
39	The result of multiplying the frequency of an oscillating body by its periodic time equals variable value .	(.....)
40	Angle of refraction = angle of reflection.	(.....)
41	Sugar cane is reproduced by grafting .	(.....)
42	The wall of the ovary after fertilization form fruit .	(.....)
43	The produced tone from tuning fork is called complicated tone .	(.....)
44	The flower which pollination is occurred by insects has hanged anther and sticky stigmas.	(.....)
45	Light waves used in radars.	(.....)
46	Syphilis is caused by a special type of spherical bacteria	(.....)

★(5) Give reason for:

1. The periodic time decreases as the number of complete oscillations increases.
.....
2. The pen seems broken when it is put in a glass of water.
.....
3. The use of ultrasonic waves in milk sterilization
.....
4. Wood doesn't allow the passage of light through it.
.....
5. Man sometimes has to pollinate palm trees.
.....
6. When a light ray is incident perpendicular to the reflecting surface, it reflects on itself.
.....
7. The waves produced due to vibration of strings are transverse mechanical waves.
.....
8. Auto pollination can't happen in sunflower.
.....
9. The energy of red light photon is less than the energy of violet light photon.
.....
10. Sound waves are mechanical waves while radio waves are electromagnetic waves.
.....
11. Sound travelling in air has less intensity than that travelling in carbon dioxide.
.....
12. Man cannot hear all sounds produced by dolphins.
.....
13. Clear glass is a transparent medium.
.....
14. Absolute refractive index of any transparent medium is always greater than one.
.....

15. A light ray transfers from a transparent medium to another and doesn't refract.

.....

16. We see lightning before hearing thunder.

.....

17. The petals of corolla are colorful.

.....

18. To pick up a coin which has fallen in water, we must look at it vertically.

.....

19. The floor of the swimming pool appears higher than its real position.

.....

20. Light can travel through space.

.....

21. Oscillatory motion is considered as a periodic motion.

.....

22. The flower of bean plant is bisexual.

.....

23. Palm plant is unisexual.

.....

24. Sound can be heard from all surrounding directions.

.....

25. The petals of corolla are colored and scented.

.....

26. The stigma of air pollinated flowers are feathery like and sticky.

.....

27. The periodic time decrease as the number of complete oscillation increases.

.....

28. The sperm has a long thin tail.

.....

***(6) What happen if:**

1. The frequency of an oscillating body increases (concerning its periodic time) .
.....
2. The oscillating body passes its rest position during its movement (concerning its velocity).
.....
3. Decreasing the amplitude of the sound source to its half (concerning the sound intensity).
.....
4. A pollen grain falls on a stigma.
.....
5. The frequency of a wave is doubled (concerning the wavelength) when the wave velocity is constant.
.....
6. Incidence of a white light ray on one face of a triangular glass prism.
.....
7. Ovary after fertilization.
.....
8. A light ray travels from a transparent medium of high optical density to another of lower optical density.
.....
9. A light ray falls perpendicular to the interface between two different transparent media.
.....
10. When the distance between the light source and a surface is doubled (concerning the light intensity).
.....
11. When you put a ringing mobile phone on a resonance box (concerning the sound intensity).
.....

12. Incidence of light rays on a rough surface.

.....

13. Vibration of particles of a medium perpendicularly to the direction of wave propagation.

.....

14. The stigma of a flower doesn't secrete sugary solution after pollination process.

.....

15. The sound wave travels from solid to water (concerning it's velocity)

.....

16. The wave length increases to the double value when the wave velocity is constant (concerning the frequency).

.....

17. A light ray falls perpendicular on a reflecting surface.

.....

18. The distance between the sound source and the ear becomes double (concerning the sound intensity).

.....

19. The testes stop their production of testosterone hormone

.....

***(7) Put (√) or (X) :**

1. The fish is seen higher than its real position in the fish tank. ()
2. The complete oscillation includes four successive amplitudes. ()
3. The velocity of the oscillating body is maximum when it passes through the original position. ()
4. Androecium is the female reproductive organ in plant. ()
5. Stigma is the male reproductive organ in the flower. ()
6. The movement of pendulum is an example for wave motion. ()
7. Bats, dogs and dolphins can hear ultrasonic waves. ()
8. The sound intensity decreases, when the source of sound touches an empty box. ()
9. The light ray refracts towards the normal when it travels from air to glass. ()
10. The velocity of the oscillating body is minimum when it passes its rest position ()
11. The corolla is the male reproductive organ in the flower. ()
12. Infrasonic waves are used in breaking down stones of kidney. ()
13. Sound can be heard from all directions that surround the sound source. ()
14. Harmonic tones that accompany the fundamental tone are lower in pitch. ()
15. Reproduction by tubers can be used in apples and pears. ()
16. Wood doesn't allow the passage of light through it. ()
17. The measuring unit of sound intensity is decibel. ()
18. Sound velocity through liquids is more than that through gases. ()
19. The pollen grains of the air pollinated flowers are sticky and have coarse surface. ()
20. If the angle between the incident light ray and the reflecting surface is 40° , so the angle of reflection equals 40° according to the first law of light reflection. ()
21. The pendulum motion is an example of wave motion. ()
22. The typical flower contains three whorls. ()
23. Drill is an example of the musical tones. ()
24. The energy of light = Constant x Wavelength. ()
25. Androecium in the flower is responsible for producing pollen grains. ()
26. The particles of the medium vibrate along the direction of the wave propagation in longitudinal wave ()

- | | |
|--|--------|
| 27. The sound intensity decreases when it touches a resonance box | () |
| 28. The swing is an example of periodic motion | () |
| 29. The typical flower contains three whorls. | () |
| 30. Light waves are electromagnetic transverse wave. | () |
| 31. Sound intensity increase as amplitude increase. | () |
| 32. Sound can be heard from all directions that surround the sound source | () |
| 33. Sound intensity increases when wind and sound waves are in the same direction | () |
| 34. The absolute refractive index for any transparent medium is less than 1 | () |
| 35. From ways of artificial vegetative reproduction are cutting, grafting and tubers | () |
| 36. The sound velocity through solids is less than that through liquids. | () |
| 37. Sonic waves are used in sterilizing food substances. | () |
| 38. The wall of ovary after pollination forms the coat of the fruit. | () |
| 39. The sound intensity increases as the amplitude increases. | () |
| 40. Reproduction by tuber happens in orange and bitter orange. | () |
| 41. The transverse wave consists of compressions and troughs. | () |

*** (8) What is meant by Define ?**

1. Complete oscillation.
2. Ultrasonic waves.
3. The inverse square law of light.
4. Sound pitch.
5. Flower.
6. Sonic waves.
7. Light intensity.
8. Periodic time.
9. Fertilization in plant.
10. Light refraction.
11. Absolute refractive index of water is 1.33
12. The wavelength of a sound wave is 1.5 m.
13. Regular reflection of light.
14. Angle of incidence of a light ray = 30°
15. Mixed pollination.

16.Harmonic tones.

17.Speed of light.

18.Amplitude.

19.Sound intensity

20.First law of reflection.

21.The angle of reflection of a light ray equals 45°

22.The wave.

23.Light reflection.

24.Periodic motion.

25.Pollination.

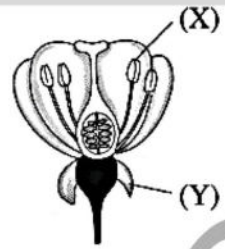
26.The amplitude of an oscillating body is 3 cm.

*(9) Problems

1

In the opposite figure :

1. Mention the name of parts (X) and (Y).
2. What is the function of part (Y) ?
3. Identify the sex of this flower.



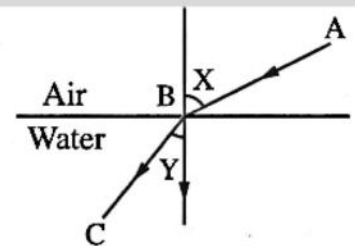
2

Calculate the frequency of a musical tone similar to the tone produced from Savart's wheel rotating with a velocity of 960 cycles in two minutes, knowing that the number of gear teeth= 30 teeth.

3

From the opposite figure, answer :

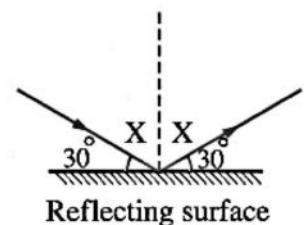
1. The ray (AB) represents
2. The ray (BC) represents
3. Angle (X) is
4. Angle (Y) is



4

From the opposite figure :

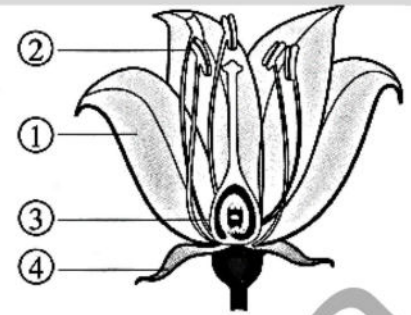
1. Calculate the angles of incidence and reflection.
2. What can you conclude from this figure ?
3. What will happen if this light ray falls perpendicular on the reflecting surface ?



5

Label the figure :

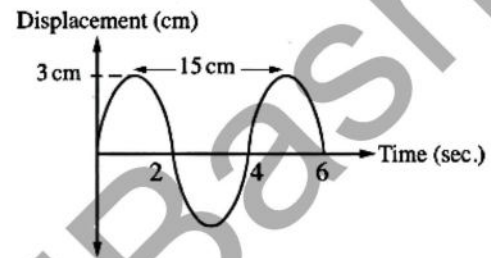
- ①
 ②
 ③
 ④



6

From the opposite figure, calculate :

1. Wavelength.
2. Frequency.
3. Amplitude.
4. Periodic time.



7

Complete the opposite figures after redrawing them in your answer sheet then complete the following statements :

1. In fig. (1) the angle of reflection =
2. In fig. (2) the angle of incidence =

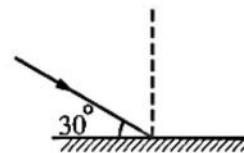


Fig. (1)

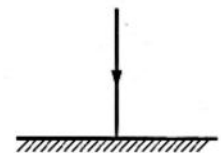


Fig. (2)

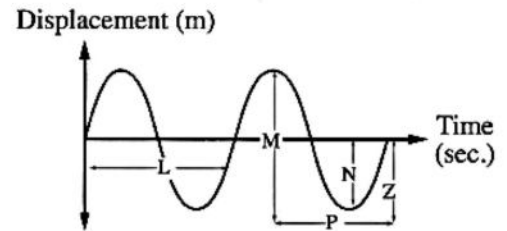
8

savart's wheel rotates with a rate of 300 cycles per minute. A sound of frequency 600 Hz is produced when an elastic plate touches the teeth of the gear, calculate the number of teeth of the gear.

9

The opposite figure represents an oscillatory motion for a simple pendulum. Choose the letter that denotes :

1. The oscillation of the pendulum forming $\frac{3}{4}$ complete oscillation.
2. The amplitude.



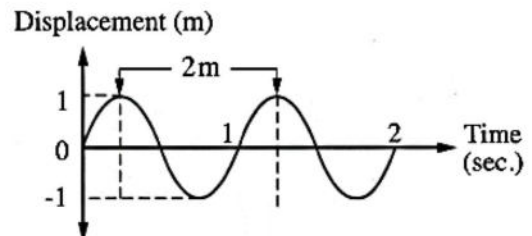
10

Calculate the number of gear teeth of Savart's wheel, if a musical tone similar to the frequency of an emitted tone = 160 Hz, and Savart's wheel rotated with a velocity of 960 cycles in three minutes.

11

From the opposite figure, find :

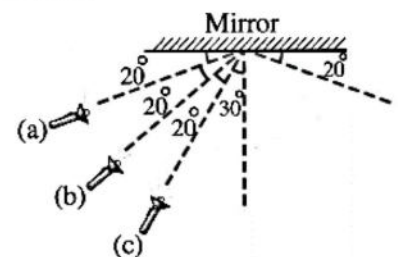
1. Wavelength.
2. Frequency.
3. Amplitude.
4. Wave velocity.



12

The opposite figure represents a torch emits light falls on a mirror :

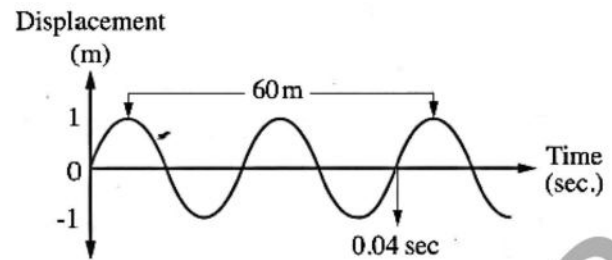
1. Torch represents the following reflection.
2. The angle between the reflected light ray and its incident light ray =
3. Identify the second law of reflection of light.



13

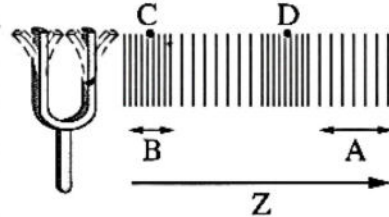
From the opposite figure, calculate :

1. Frequency.
2. Wavelength.
3. Velocity of the wave.



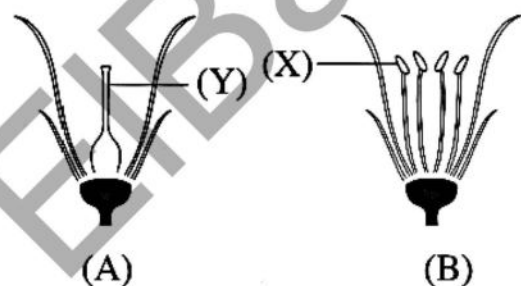
14

(1)



1. What is the kind of the produced wave ?
2. Label points (A) and (B).
3. What's the name of the distance between (C) and (D) ?
4. The arrow (Z) refers to the

(2)

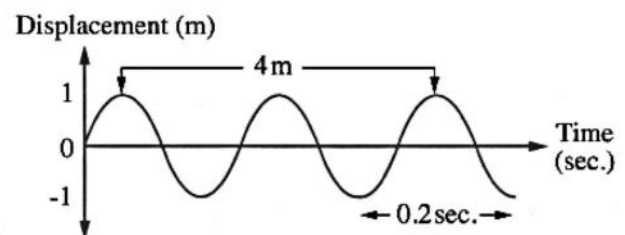


1. What is the name of parts (X) and (Y) ?
2. Mention the function of part (X).
3. What is the sex of flowers (A) and (B) ?

15

From the opposite figure, find :

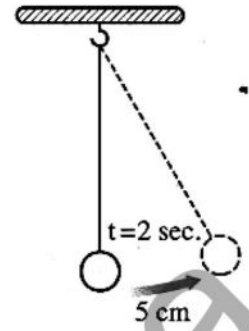
1. Wavelength.
2. Frequency.
3. Amplitude.
4. Wave velocity.



16

From the opposite figure, calculate the following :

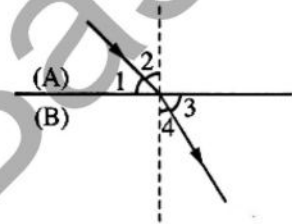
1. Amplitude.
2. Periodic time.
3. Frequency.



17

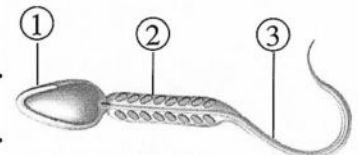
From the opposite figure, find the number that refers to the following :

1. The angle of incidence.
2. The angle of refraction.
3. Which medium (A) or (B) is greater in the optical density ?



18

Study the opposite figure, Then label the figure



Model Answer

★ (1) Write the scientific term:

- | | | | |
|--|---|--|---|
| 1. Infrasonic waves
2. Amplitude
3. Cross-pollination
4. Decibel
5. Typical flower
6. Optical density of medium
7. Bisexual
8. Wave motion
9. Complete oscillation
10. Sound
11. Pollination
12. Savart wheel
13. Calyx
14. Zygote
15. Irregular reflection
16. Light intensity
17. Sound pitch
18. Periodic time | 19. Crest
20. Watt/m ²
21. Frequency
22. Mirage
23. Light refraction
24. Longitudinal waves
25. Angle of emergence
26. First law
27. Oscillatory motion
28. Mechanical waves
29. Sound intensity
30. Light reflection
31. Angle of incidence
32. Typical flower
33. Rarefaction
34. Opaque object
35. Tissue culture
36. Corolla
37. Periodic time | 38. Sonic waves
39. Inverse square law of sound
40. Max blank
41. Optical density of medium
42. Fertilization
43. Wave
44. Compression
45. Wave velocity
46. Photon energy
47. Tissue culture
48. Absolute refractive index
49. Transvers waves
50. Flower
51. Mechanical waves
52. Irregular reflection
53. Mirage | 54. Sound quality
55. wave motion
56. Angle of reflection
57. Optical density of medium
58. Frequency
59. Ultrasonic waves
60. Second law
61. Savart wheel
62. Jacuzzi
63. Infrasonic
64. Testosterone
65. Fertilization
66. Vas deference
67. Testis
68. Seminal fluid
69. Progesterone
70. Testis
71. Fallopian tube |
|--|---|--|---|

★ (2) Choose the right answer:

- | | | | | | | | |
|---|--|--|--|--|--|--|---|
| 1. B
2. A
3. B
4. A
5. B
6. A
7. C
8. B
9. C
10. D
11. B
12. D
13. A
14. A | 15. B
16. C
17. A
18. B
19. C
20. C
21. B
22. D
23. C
24. C
25. B
26. A
27. C
28. A | 29. C
30. C
31. A
32. C
33. B
34. C
35. D
36. D
37. C
38. B
39. C
40. B
41. C
42. A | 43. D
44. C
45. B
46. C
47. C
48. A
49. B
50. B
51. C
52. C
53. B
54. C
55. A
56. C | 57. C
58. C
59. A
60. B
61. A
62. A
63. A
64. A
65. B
66. B
67. C
68. B
69. C
70. A | 71. C
72. C
73. D
74. A
75. C
76. B
77. D
78. D
79. B
80. D
81. C
82. B
83. A
84. C | 85. A
86. D
87. A
88. A
89. C
90. C
91. B
92. C
93. A
94. B
95. D
96. A
97. C
98. A | 99. D
100. A
101. A
102. B
103. B
104. D
105. A |
|---|--|--|--|--|--|--|---|

★ (3) Complete the following:

- | | | | |
|--|---|--|--|
| 1. Glass opaque
2. Seed
3. Ultrasonic
4. High – low
5. Androecium – gynoecium
6. Intensity – pitch
7. Perpendicular
8. Petal
9. Absolute refractive index
10. Calyx - sepal
11. Refraction – normal
12. Decibel
13. Transverse – compression
14. Maximum
15. Crest - trough
16. Higher – lower
17. Self - cross
18. Female – zygote
19. 65
20. 20 – 20
21. High – low
22. Zygote
23. Pitch | 24. Electromagnetic – mechanical
25. Four
26. Photons
27. Sepal
28. Filament
29. Frequency
30. Catch pollen grains
31. Irregular
32. Brocken
33. 0.125
34. Decibel – meter
35. Fruit – seed
36. White – seven
37. Increase
38. 20
39. Zero
40. Sharp – harsh
41. Frequency x wavelength
42. Periodic – repeated
43. Compression – rarefaction
44. One – smooth
45. Directly – frequency
46. Red – violet
47. 2 | 48. Electromagnetic – mechanical
49. Wave – periodic
50. Directly – square
51. Unisexual – bisexual
52. Real – apparent
53. Amplitude
54. Anther – filament
55. Hertz – decibel
56. Huge – light
57. Uniform – non uniform
58. Opaque – transparent
59. Mechanical – vacuum
60. Sepal – corolla
61. Frequency – amplitude
62. Oscillatory – wave
63. Refraction – density
64. Covered by light in one second
65. Transparent – straight
66. Along
67. Regular – irregular
68. Straight
69. Hertz
70. Watt/m ²
71. Equals
72. Transverse | 73. Pollen grains
74. Inversely
75. Style – stigma
76. 20 – 20000
77. Quarter
78. Vibration
79. Tubers
80. 20 – 20000
81. Simple harmonic motion
82. Sepal – petal
83. Cutting – grafting
84. 50
85. m/sec - Watt/m ²
86. Androecium – gynoecium
87. Regular
88. Amplitude
89. Infrasonic
90. Fruit
91. Sperm – ovum
92. Estrogen
93. Testis – estrogen
94. Sperm – ovum
95. Sperm – testis |
|--|---|--|--|

***(4) Correct the underlined words:**

1. Increase	11. Light	20. 10	29. Watt/m ²	41. Cutting
2. Four	refraction	21. 20	30. Intensity	42. Pericarp
3. 50	12. Straight	22. Carpel	31. Ovary	43. Fundamental
4. Potatoes	13. More	23. Longitudinal	32. Grafting	tones
5. Opaque	14. Air	24. Equal	33. Increase	44. Wind
6. Frequency	15. Oscillatory	25. Mirage	34. Attachment	45. Radio
7. Insects	16. Increase	26. Petals	35. Periodic	46. Spiral
8. Compression	17. Red	27. Solid	36. Reflection	
9. Higher	18. Style	28. Potatoes and	37. Tuber	
10. Fertilization	19. Ultrasonic	sweet	38. Increase	
		potatoes	39. One	
			40. Incident	

***(5) Give reason for:**

- Because the number of complete oscillations is inversely proportional to the periodic time.
- Due to the refraction of light rays coming from the immersed part in water , where the eye sees the immersed part of the pencil on the extensions of these refracted rays.
- Because they have high ability to kill some types of bacteria and stop the action of some viruses.
- Because it is an opaque medium.
- To ensure the pollination process, as pollination is difficult to occur by insects or by air.
- Because angle of incidence= angle of reflection= zero.
- They are transverse because the medium particles vibrate perpendicular to the direction of wave propagation forming crests and troughs and mechanical because they need a medium to propagate through.
- Because their anthers and stigmas are not matured at the same time.
- Because the frequency of red light photon is less than that of violet light photon.
- Because sound waves need a medium to propagate through, while radio waves don't need a medium to propagate through.
- Because the density of carbon dioxide gas is more than that of air, since sound intensity is directly proportional to the density of the medium.
- Because dolphins produce ultrasonic waves, while the human ears can't hear sounds of frequencies more than 20 kilohertz
- Because clear glass permits most light to pass through and objects can be seen clearly through it.
- Because the velocity of light through air is always greater than that through any other transparent medium.
- Because the angle of incidence = zero.
- Because the velocity of light waves of lightning (electromagnetic waves) is much greater than that of sound waves of thunder (mechanical waves).
- To attract insects to the flower which help in the sexual reproduction process.
- Because the ray which falls perpendicular to the interface passes to air without refraction, so the apparent position is the real position.
- Due to light refraction.
- Because it is electromagnetic waves which don't need a medium to travel through.
- Because it is repeated regularly in equal periods of time.
- Because its flower contains four whorls.
- Because the flowers contain only male or female reproductive organ.
- Because sound travels through air as spheres of compressions and rarefactions whose center is the sound source
- To attract insects to the flower which help in the sexual reproduction process.
- To catch pollen grains from air.
- Because the number of complete oscillations is inversely proportional to the periodic time.
- To enable it to move.

***(6) What happen if:**

1. The periodic time will decrease
2. Its velocity increases to the maximum value.
3. Sound intensity will decrease
4. It will germinate fanning a pollen tube.
5. The wavelength decreases to its half value.
6. The white light analysis into seven colours.
7. The ovary will grow to become a fruit.
8. It will refract.
9. It will pass without refraction.
10. The light intensity decreases to its quarter.
11. The intensity of the produced tone increases.
12. The light rays are reflected in many directions.
13. Transverse waves are formed.
14. The pollen grain will not stick on stigma, and then pollen grain will not germinate
15. Sound velocity will decrease, since velocity of sound through solids is higher than the velocity of sound through liquids
16. The frequency will decrease to half since ($v = F \times \lambda$).
17. The light ray will reflect on itself
18. The sound intensity will decrease to its quarter.
19. the male doesn't reach to the puberty.

***(7) Put (√) or (X) :**

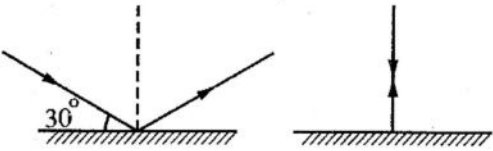
- | | | | | |
|----------|-----------|-----------|-----------|-----------|
| 1. (√) | 10. (X) | 19. (X) | 28. (√) | 37. (X) |
| 2. (√) | 11. (X) | 20. (X) | 29. (X) | 38. (√) |
| 3. (√) | 12. (X) | 21. (X) | 30. (√) | 39. (√) |
| 4. (X) | 13. (√) | 22. (X) | 31. (√) | 40. (X) |
| 5. (X) | 14. (X) | 23. (X) | 32. (√) | 41. (X) |
| 6. (X) | 15. (X) | 24. (X) | 33. (√) | |
| 7. (√) | 16. (√) | 25. (√) | 34. (X) | |
| 8. (X) | 17. (X) | 26. (√) | 35. (√) | |
| 9. (√) | 18. (√) | 27. (X) | 36. (X) | |

***(8) What is meant by Define ?**

1. It is the motion of an oscillating body when it passes by a fixed point on its path two successive times in the same direction.
2. They are sound waves of frequencies higher than 20000 Hz (20 KHz).
3. The light intensity of a surface is inversely proportional to the square of the distance between the surface and the source of light.
4. It is the property by which the ear can distinguish (differentiate) between harsh and sharp voices.
5. It is a short stem whose leaves are modified into reproductive organs.
6. They are sound waves of frequencies ranging from 20 Hz to 20 KHz
7. It is the quantity of light falling perpendicular to a unit area of a surface in one second.
8. It is the time taken by an oscillating body to make one complete oscillation.
9. It is the process of fusion of the nucleus of male cell (pollen grain) with the nucleus of female cell (ovum) to form the zygote.
10. It is the change of light path when it travels from a transparent medium to another transparent medium of different optical density.
11. The ratio between the velocity of light through air to that through water is 1.33
12. The distance between the centers of two successive compressions or two successive rarefactions is 1.5 m.
13. It is the reflection of light rays when they meet (fall on) a smooth (uniform) and glistening reflecting surface, where the incident light rays are reflected
14. The angle between the incident light ray and the line perpendicular to the reflecting surface at the point of incidence is 30°
15. It is the transfer of pollen grains from the anthers of a flower to the stigmas of another flower in other plant of the same kind.

16. They are tones that accompany the fundamental (basic) tone but they are higher in pitch and lower in intensity and differ from one instrument to another.
17. It is the distance which is covered by light in one second.
18. It is the maximum displacement done by the oscillating body away from its rest position.
19. It is the property by which the ear can distinguish (differentiate) between either strong and weak sounds.
20. Angle of incidence = Angle of reflection
21. The angle between the reflected light ray and the line perpendicular to the reflecting surface at the point of incidence = 45°
22. It is the disturbance that propagates and transfers energy in the direction of propagation.
23. It is the rebounding of light waves in the same medium on meeting a reflecting surface.
24. It's a motion which is regularly repeated in equal periods of time.
25. It is the process of transfer of pollen grains from the flower anthers to the stigmas.
26. The maximum displacement done by the oscillating body away from its rest position is 3 cm (0.03 m).

*(9) Problems

<p>1. Part (X) : Anther. Part (Y) : Sepal.</p> <p>2. It protects the inner parts of the flower specially before blooming.</p> <p>3. Bisexual (hermaphrodite) flower.</p>	7	 <p>Fig. (1) Fig. (2)</p> <p>1. 60° 2. zero</p>
<p>2. Sound frequency (F)</p> $= \frac{\text{Number of cycles (d)} \times \text{Number of gear teeth (n)}}{\text{Time in seconds (t)}}$ $= \frac{960 \times 30}{120} = 240 \text{ Hz.}$		
<p>3. 1. incident ray. 2. refracted ray. 3. angle of incidence. 4. angle of refraction.</p>	8	<p>Sound frequency (F) =</p> $\frac{\text{Number of cycles (d)} \times \text{Number of gear teeth (n)}}{\text{Time in seconds (t)}}$ $600 = \frac{300 \times \text{Number of gear teeth}}{60}$ $\text{Number of gear teeth} = \frac{600 \times 60}{300} = 120 \text{ teeth.}$
	9	<p>1. P 2. N</p>
<p>4. 1. Angle of incidence = $90^\circ - 30^\circ = 60^\circ$ Angle of reflection = $90^\circ - 30^\circ = 60^\circ$ 2. Angle of incidence = Angle of reflection 3. It will reflect on itself.</p>	10	<p>Sound frequency (F) =</p> $\frac{\text{Number of cycles (d)} \times \text{Number of gear teeth (n)}}{\text{Time in seconds (t)}}$ $160 = \frac{960 \times \text{Number of gear teeth}}{180}$ $\text{Number of gear teeth} = \frac{160 \times 180}{960} = 30 \text{ teeth.}$
<p>5. ① Petal. ② Anther. ③ Ovary. ④ Sepal.</p> <p>6. 1. Wavelength = 15 cm = 0.15 m. 2. Frequency = $\frac{1}{4} = 0.25 \text{ Hz.}$ 3. Amplitude = 3 cm = 0.03 m. 4. Periodic time = $\frac{1}{0.25} = 4 \text{ sec.}$</p>	11	<p>11. 1. Wavelength = 2 m. 2. Frequency = $\frac{\text{Number of complete oscillations}}{\text{Time in seconds}}$ $= \frac{2}{2} = 1 \text{ Hz.}$ 3. Amplitude = 1 m. 4. Wave velocity = Wavelength \times Frequency $= 2 \times 1 = 2 \text{ m/sec.}$</p>
	12	<p>1. (a) 2. 140°</p> <p>3. The incident light ray, the reflected light ray and the normal to the surface of reflection at the point of incidence, all locate in one plane perpendicular to the reflecting surface.</p>

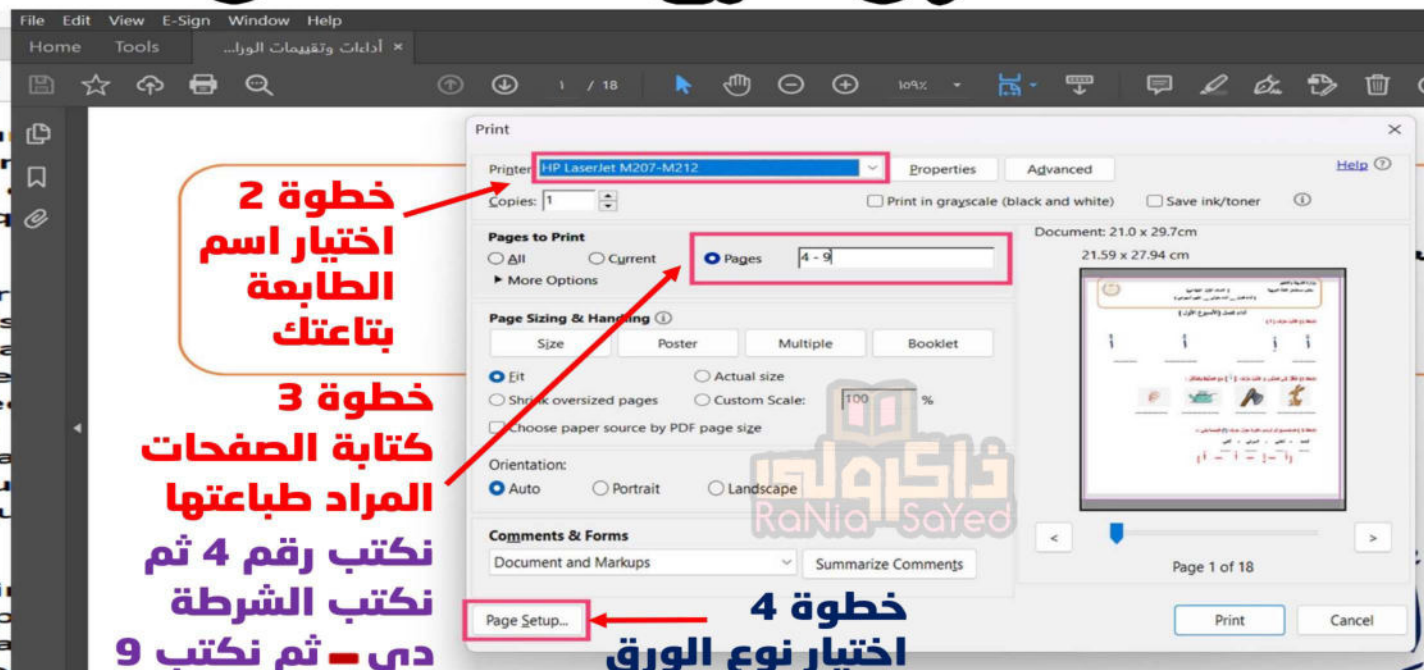
13	1. Frequency = $\frac{2}{0.04} = 50 \text{ Hz.}$ 2. Wavelength = $\frac{60}{2} = 30 \text{ m.}$ 3. Wave velocity = Frequency \times Wavelength $= 50 \times 30 = 1500 \text{ m/sec.}$	16	1. Amplitude = 5 cm = 0.05 m. 2. Periodic time = $4 \times 2 = 8 \text{ sec.}$ 3. Frequency = $\frac{1}{\text{Periodic time}} = \frac{1}{8}$ $= 0.125 \text{ Hz.}$
14	(1) 1. Longitudinal wave. 2. (A) Rarefaction. (B) Compression. 3. The wavelength. 4. direction of wave propagation. (2) 1. (X) Anther. (Y) Style. 2. It produces and holds pollen grains. 3. - Flower (A) is a female flower. - Flower (B) is a male flower.	17	1. 2 2. 4 3. Medium (B).
15	1. Wavelength = $\frac{4}{2} = 2 \text{ m.}$ 2. Periodic time = $2 \times 0.2 = 0.4 \text{ sec.}$ Frequency = $\frac{1}{\text{Periodic time}} = \frac{1}{0.4} = 2.5 \text{ Hz.}$ 3. Amplitude = 1 m. 4. Wave velocity = Wavelength \times Frequency $= 2 \times 2.5 = 5 \text{ m/sec.}$	18	1. Head 2. Middle 3. Tail

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



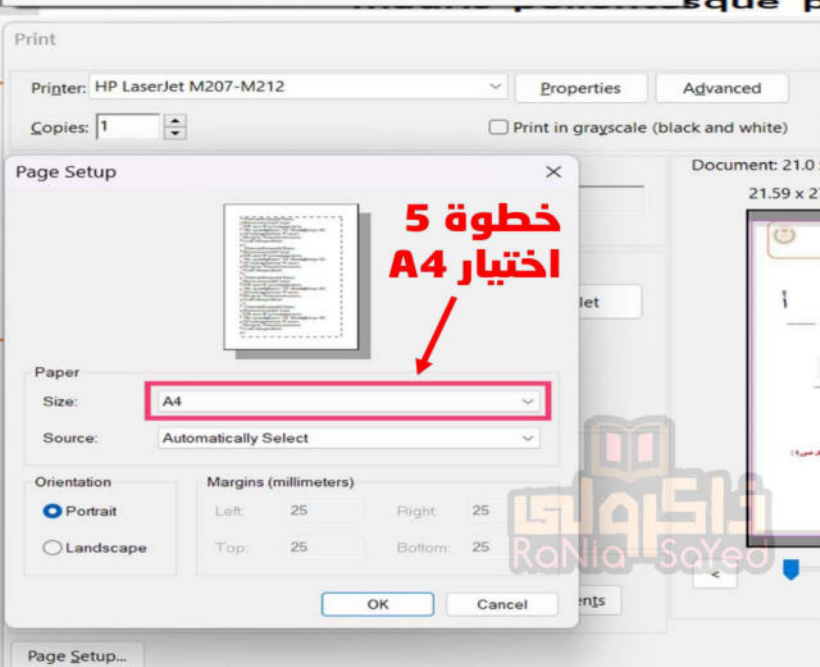
خطوة 1



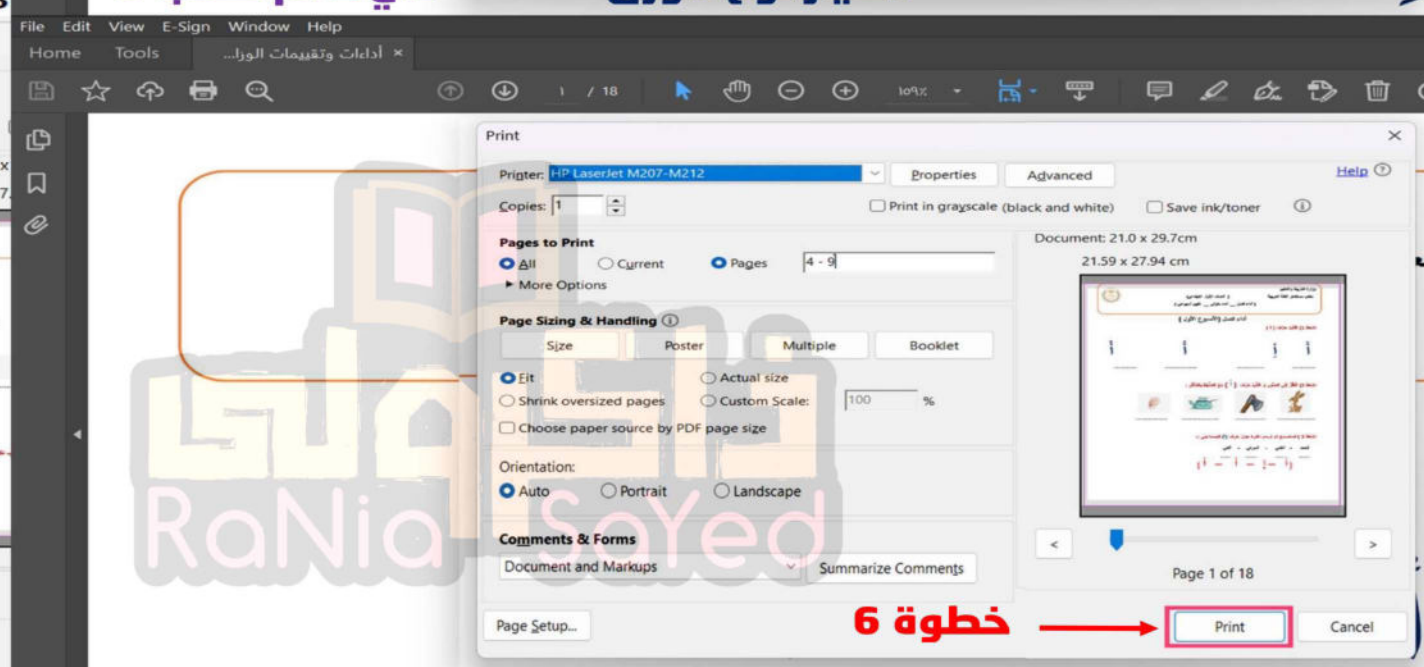
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6

حمل الآن

مجاناً وحصرياً

المراجعة رقم (2)

الترم الثاني



1) Complete the following statements:

- 1. The outer whorl of the flower is called, each leaf is called**
- 2. The male reproductive organ in flower is..., while the female reproductive organ in flower is**
- 3. Thehormone in male andhormone in female are responsible for the appearance of secondary sex characters.**
- 4. Fertilization is the process of fusing the male cell nucleus (pollen grains) with Nucleus to form**
- 5. The egg contains..... of genetic material of the plant species, while zygote contain of genetic material of the plant species.**
- 6.glands andgland are from glands associated with male genital system.**
- 7. and are female sex hormone.**
- 8. After fertilization, the ovary grows formingwhile the ovule converts into ...**
- 9. Each stamen consists of and**
- 10. The calyx is a group ofleaves, each leaf is called**
- 11. The sperm and ovum are fused together to form which carries pairs of chromosomes.**
- 12. Each ovary produces an ovum every day in exchange with the other ovary.**
- 13. Calyx consists of green leaves called .. , but corolla consists of colored leaves called.....**
- 14. From the artificial vegetative reproduction in plants are , and**
- 15. The testis function is to produce and secrete the hormone.**
- 16. The bisexual flower contains and**
- 17. The human zygote results from the fusion of and**
- 18. The sperm consists of, middle part and**
- 19. differ according to the nature of the ovary either contain one or more ova.**
- 20. The vas deferens transports from..... To urethra.**
- 21. Sweet potatoes is considered as, while the potatoes are and reproduction of them is done by**

22. Sharp tones have, while rough tones havefrequencies.
23. The measuring unit of sound intensity is... , while the measuring unit of noise intensity is.....
24. The distance covered by light in one second is called.....
25. Frequency of sonic waves ranges betweenHz and Hz
26. The reflection is classified into two types which are and
27. Sound intensity is the property by which the ear can distinguish between and..... sounds
28. Sound pitch is the property by which the ear can distinguish between and..... sounds
29. From the factors affecting sound intensity are and
30. If the angle between the reflected ray and the perpendicular to the reflecting surface is 40° , the incidence angle is.....
31. A sound wave travels in air with velocity 330 m/s and has a wavelength of 0.5 m, its frequency is.....
32. Angle of is the angle between the refracted light ray and the at the point of incidence on the separating surface.
33. The sound is considered from .. waves , because it needs a medium
34. When you look at a coin in a glass of water, its position appears to be lower than Position.
35. Sound intensity at certain point isproportional to the square of the distance between this point and the sound source, and is proportional to the square of the amplitude.
36. The ratio between light speed in air and light speed in a medium is called of a medium.
37. From the natural phenomenon that are related to the reflection and refraction of light are..... and
38. A pencil partially immersed in water appears as being.....

39. If the angle between the incident light ray and the reflecting surface is 25° , so the angle of reflection =
40. As amplitude increases, the sound intensity
41. Savart's wheel is used to determine.....
42. Hertz is the unit which measures the of the oscillating body.
43. is the measuring unit of frequency, while is the measuring unit of amplitude.
44. The result of multiplying the frequency by periodic time equals.....
45. Transverse wave consists of..... and
46. Longitudinal wave consists of.....and.....
47. The complete oscillation contain successive displacements.
48. If the periodic time of an oscillating body is 0.1 sec., so the number of complete oscillations in one minute is
49. Waves are classified according to the ability to propagate and transfer energy into.....and
50. travels in air with velocity 340 m/s
51. The periodic motion is the motion which is regularly repeated in equal.....
52. is considered the simplest form of oscillatory motion.
53. The sound is considered from... waves, because it needs a medium.
54. When an oscillating body makes 500 complete oscillations in a time = 2 minutes, its periodic time equals.....

2) Write scientific term for the following:

1. Short stem where the leaves are developed and modified into reproductive organs.....
- 3) The outer whorl of floral leaves which consists of a group of green sepals.....
- 4) A flower that contains androecium and gynoecium.....
- 5) Leaves of floral whorl that consists of fine filament ending by a sac.....
- 6) It is the pollination carried out by man.....

- 7) **A hormone produced by the testis**
- 8) **A floral whorl in the flower, its function is to attract insects.**
- 9) **A sac-like structure that regulates and keeps the temperature of testis 2 degrees below the normal body temperature.**
- 10) **The cell resulting from the fusion of pollen grains and ovum nucleus.**
- 11) **The transfer of pollen grains from the anthers of a flower to the stigma of another flower on another plant.**
- 12) **The fusion of the male cell (pollen grain) with female cell (ovum).**
- 13) **The female reproductive organ in flower.**
- 14) **A flower that contains androecium only.**
- 15) **A group of glands their function is to secrete semen.**
- 16) **The reproduction of some plants by parts of the roots, stem or leaves.**
- 17) **A new method of producing large numbers of plants from a small part of it.**
- 18) **The process of multiplying a small part of plant to get many identical parts.**
- 19) **18. A tube with funnel shaped opening transports the ovum to the uterus.**
- 20) **19. The genetic material which carries genes those are responsible for the hereditary traits of the organisms.**
- 21) **20. A cell, which its nucleus contain 23 pairs of chromosomes resulting from the fusion of sperm and ovum.**
- 22) **The changing of light ray path when moving from a transparent medium to another transparent medium.**
- 23) **They are sound waves of frequency less than 20 Hz.**
- 24) **The distance covered by light in one second.**
- 25) **24. A property by which the ear can distinguish between sharp and rough sounds.**
- 26) **25. A property by which the ear can distinguish between strong and weak sounds.**
- 27) **26. The ability of the medium to refract light.**
- 28) **27. A phenomenon that appears in the desert as a result of reflection.**
- 29) **It is an external factor that affects the ear causing the sense of hearing.**

5. The bisexual flower contains

- a. only androecium b. only gynoecium c. androecium and gynoecium

6. After fertilization, the ovary grows forming

- a. seed b. fruit c. flower

7. The green leaves surrounding the flower are.....

- a. carpels b. stamens c. petals d. sepals

8. Fertilization is the process of fusion of male and female cells to form

- a. zygote b. sperm c. ovum d. pollen grain

9. The floral whorl which is not found in the female flower is

- a. calyx b. androecium c. corolla d. gynoecium

10.A mobile cell of a relatively small size in human is called

- a. sperm b. ovum c. ovule d. pollen grain

11.....occur when zygote is formed

- a. embryo b. fertilization c. pollen grain d. ovum

12. All the following are parts of male reproductive system except.....

- a. vas deferens b. uterus c. testis d. Cowper's gland

13. All the following methods are examples for artificial vegetative reproduction except.....

- a. cutting b. bulbs c. grafting d. tissue culture

14. All of the factors affecting sound intensity except.....

- a. amplitude b. frequency c. medium density d. wind direction

15. The angle between the incident light ray and the reflected light ray is 40° , so the angle of reflection is

- a. 20° b. 40° c. 80° d. 90°

16. The number of teeth gear in savart's wheel increase, the of the produced sound increase

- a. amplitude b. intensity c. frequency d. quality

17. From the natural phenomenon that resulted from reflection of light is

- echo b. mirage c. seeing objects higher than normal position

18. . The human ear can hear sound of frequency.....

- a. 300 Hz b. 30 KHz c. 50 KHz

19. If the angle between the incident light ray and the reflecting surface = 40° , so the angle of reflection of light =

- a. 30° b. 40° c. 50° d. 60°

20. . The sound of frequency 200 Hz is than the sound of frequency 100 Hz

- a. stronger b. sharper c. weaker d. harsher

21. The amplitude of the harmonic tone is that of fundamental tone.

- a. smaller than b. larger than c. equal to d. (a) and (b) are correct

22. The doctors use waves which have frequency to break down kidney and uterus stones.

- b. less than 20 Hz b. 20 Hz c. more than 20 KHz

23. When a light ray passes from glass to air, it refracts to the normal.

- a. near to b. away from c. perpendicular to

24. If the distance between sound source and the ear increases 3 times, so intensity of sound.....

- a. decreases $\frac{1}{2}$ to b. increases 3 times c. decreases to d. decreases

25. All the following are examples of the oscillatory motion except.....

swing

b. spring

c. rotary bee

d. tuning fork

26is (are) mechanical waves.

a. water waves only

b. sound waves only

c. both (a) and (b)

27. All the following are electromagnetic waves except.....

a. light

b. sound

c. x-ray

d. radio

28. The periodic time of an oscillating body which makes 240 oscillations in one minute =

a. 1 sec.

b. 0.25 sec.

c. 0.5 sec.

d. 4 sec.

4) Correct the underlined word:

1. The stamen consists of stigma, style and ovary.
2. The corolla is the male reproductive organ in the flower
3. Ovaries produce sperm and male hormone.
4. The egg contains quarter of the genital material of plant species.
5. Palm trees are pollinated by air.
6. The two glands that lie outside the body in sacrotal sac are called two anthers.
7. From type of reproduction are sexual and bisexual.
8. The estrogen hormones are responsible for pregnancy take place and continue.
9. In pollination by water, the flower has feathery like and sticky.
10. The rose is a group of flowers arranged on the same axle.
11. Ovule consists of stigma, style and ovary.
12. The ovum is a mobile cell, of a relatively small size.
13. The ovaries are adapted to receive the ovum and deliver it to the uterus.
14. Sugar can is reproduced by grafting.

15. **Penis** transfers the sperms from the testis to the urethra.
16. The angle of incidence light ray is greater than angle of reflection.
17. The sound velocity through liquids is less than that through gases.
18. Human ear can distinguish sounds of frequency ranging between 10: 20000 Hz.
19. Infrasonic waves can be used to determine industrial defects.
20. Angle of refraction = angle of reflection
21. Particles of the medium vibrate along the direction of the wave propagation in the transverse wave.

5) What happens when?

- 1) Pollen grain falls on the stigma of a flower.
.....
- 2) If there is no seminal fluid in male.
.....
- 3) The middle part (mid-piece) of a sperm is damaged.
.....
- 4) Ovaries of the human female are not secreting the progesterone hormone.
.....
- 5) The stigma of a flower doesn't secrete sugary solution after pollination process.
.....
- 6) Incidence of light rays on a rough surface.
.....
- 7) The sound wave travels from solid to water (concerning its velocity)
.....
- 8) The wave length increases to the double value when the wave velocity is constant (concerning the frequency).
.....
- 9) A light ray falls perpendicular on a reflecting surface.
.....
- 10) Light rays falls perpendicular to the interface between different transparent media of different optical densities.
.....

11) The distance between the sound source and the ear becomes double (concerning the sound intensity).
.....

12) The oscillating body passes its rest position during its movement (concerning its velocity).
.....

13) The oscillating body reaches the position of its maximum displacement during its movement (concerning its kinetic energy).
.....

14) A light ray travels from a more optically dense medium like glass to less optically dense as air.
.....

6) What is meant by?

1) Pollination in flowers.....

2) Self pollination.....

3) Cross pollination in plants.....

4) Artificial pollination.....

5) Fertilization in flower.....

6) Zygote.....

7) Hermaphrodite flower.....

8) Tissue culture.....

9) Sound pitch.....

10) Sound intensity.....

11) Sonic waves.....

12) The absolute refractive index of water is 1.33.....

13) Mirage.....

14) Angle of emergence.....

15) Light reflection.....

16) Light refraction.....

17) Optical density.....

18) The oscillatory motion.....

19) The wave.....

20) The oscillating body makes 200 oscillations in 2 minutes.....

21) The wavelength of a sound wave is 30 cm.....

7) Mention one use or function for the following:

- 1) Calyx.....
- 2) Epididymis.....
- 3) Gynoecium.....
- 4) The corolla.....
- 5) Anthers of flowers.....
- 6) Ovary in female human.....
- 7) Fallopian tubes.....
- 8) Testis.....
- 9) The sacrotal sac.....
- 10) Head of sperm.....
- 11) Midi-piece of sperm.....
- 12) Testosterone hormone.....
- 13) Estrogen hormone.....
- 14) Progesterone hormone.....
- 15) Prostate, seminal vesicles and Cowper's glands.....
- 16) Ultrasonic waves.....
- 17) Jacuzzi (physiotherapy tubes).....
- 18) Radio waves.....

8) Give reason for the following:

- 1) The petal of corolla is colorful and scented?
- 2) The fallopian tubes are lined with cilia?
- 3) The presence of the testis in human male outside the body in the sacrotal sac?
- 4) Palm flowers are unisexual?
- 5) Flowers pollinated by insects produce coarse pollen grains?
- 6) Hearing thunder after seeing lightning although they both happen at the same time?

- 7) Auto pollination happens in barley plant, while can't happen in sunflowers?**
- 8) The sperm has a long and a thin tail?**
- 9) The uterus is lined with mucus membrane rich in blood capillaries?**
- 10) The uterus is a suitable organ for the growth of embryo?**
- 11) Peach fruit contains only one seed?**
- 12) The seminal fluid is alkaline?**
- 13) When a light ray is incident perpendicular to a reflecting surface, it reflects on itself?**
- 14) The floor of a swimming pool appears higher than its real position?**
- 15) 15. A pencil in a glass of water appears broken?**
- 16) Sound of man harsh, while sound of woman sharp?**
- 17) Sound travelling in air has less intensity than travelling in carbon dioxide?**
- 18) Light can travel through free space?**
- 19) The absolute refractive index for any transparent media is larger than 1?**
- 20) The use of ultrasonic waves in milk sterilization?**
- 21) The motion of rotary bee is considered as a periodic motion, but is not considered as an oscillatory motion?**
- 22) The motion of a spring is an oscillatory motion?**
- 23) We can't hear the sound of solar explosions, while we can see the light coming out of it?**

9) Compare between:

- 1) Calyx and corolla (concerning of leaves and function).**
- 2) Sperm and ovum (concerning of size, the mobility (movement), the structure and number).**
- 3) Unisexual flowers and bisexual flowers.**
- 4) The sound of lion and sound of sparrow (according to sound pitch and frequency).**
- 5) Infrasonic and ultrasonic waves (frequency – examples).**
- 6) Mechanical and electromagnetic waves (definition, properties and examples).**
- 7) Oscillatory motion and wave motion (concerning definition and examples of each of them).**
- 8) Transverse wave and longitudinal wave (definition, components of each, wavelength and examples).**

10) What happens for each of the following after fertilization?

- 1) Ovary**
- 2) Ovule**
- 3) Zygote**

11) Different types of questions:

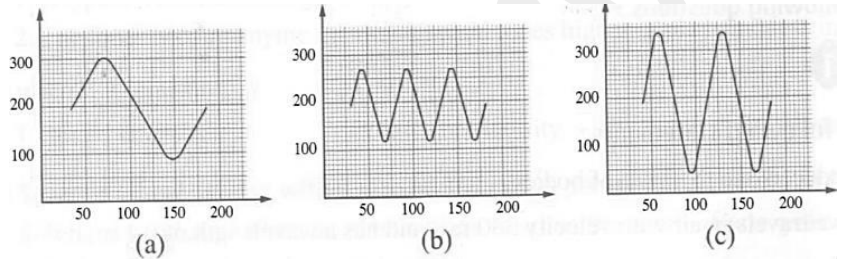
- 1) If a spiral spring makes a longitudinal wave, calculate**
 - i. The wavelength of this wave, if you know that the distance between the second and the fourth compressions is 20 cm.**
 - ii. The wave velocity, if you know that the frequency of such wave is 150 Hertz.**

2) Calculate the wavelength for each of the following :

- i. A longitudinal wave, the distance between its first and fourth rarefactions = 30 meter.
- ii. A transverse wave, the distance between its successive crest and trough = 8 meter.

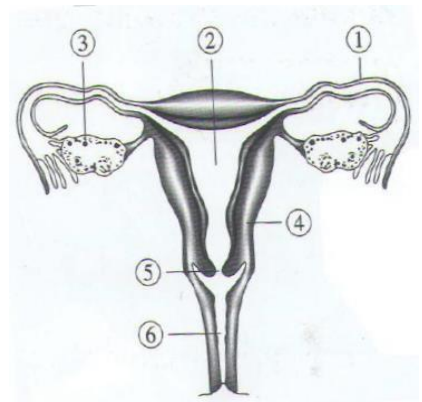
3) From the opposite figure find:

- i. The largest amplitude
- ii. The sharper tone
- iii. The rough tone
- iv. The higher intensity



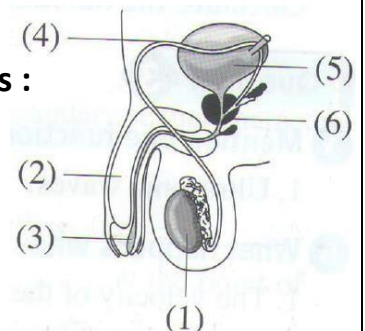
4) Look at the opposite diagram then answer the following:

- i. What is the name of this system?
- ii. Replace the numbers on the figure by the suitable labels.
- iii. What is the organ which....?
 1. Ova are produced
 2. The ovum is fertilized
 3. Fetus is growing
 4. The embryo delivered to life
 5. Secrete progesterone



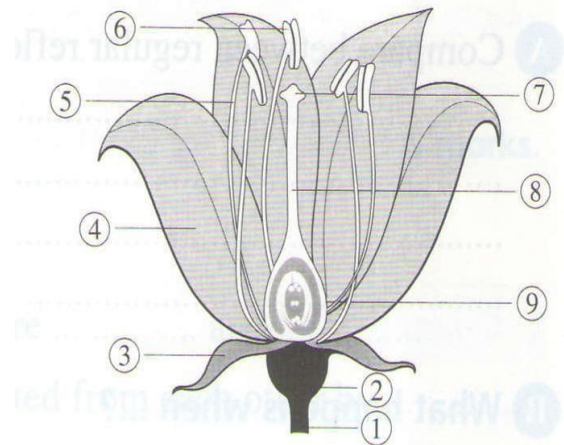
5) Look at the opposite figure , then answer the following questions :

- i. What does the figure represent?
- ii. Label the figure



6) Look at the opposite figure , then answer the following questions :

- i. what is the sex of the flower
- ii. Label the figure
- iii. The organ which consists of parts (7), (8) and (9) is called.....
- iv. The organ which consists of parts 5 and 6 is called.....



7) Mention the sex in each flower from the following:

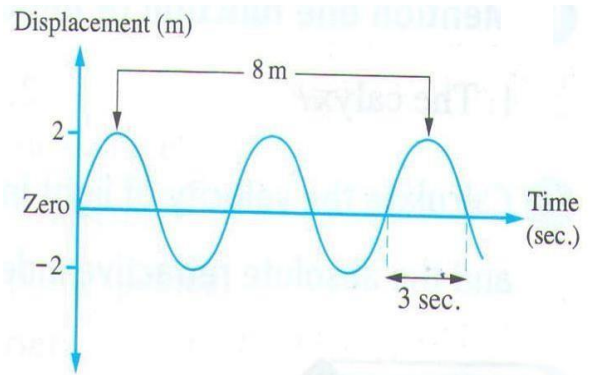


8) Calculate the frequency of a tone produced from savart's wheel when touching a gear of 30 teeth that rotates in 960 cycles in two minutes.

9) Savart's wheel rotates with a rate of 300 cycles per minute. A sound frequency 600 Hz is produced when an electric plate touches teeth of gear. Calculate the number of the gear teeth.

10) From the opposite, calculate :

- e. wavelength
- f. Frequency
- g. Amplitude
- h. Wave velocity



11) Calculate the absolute refractive index of diamond given that the speed of light through it is 1.5×10^8 m/sec. knowing that the light velocity in air is 3×10^8 m/sec.

**12) If the frequency of a sound wave is 200 Hz and the wavelength of this wave is 150 cm, calculate :
The velocity of sound waves propagation in air.**

Model Answers

1) Complete the following statements:

1. Calyx-sepal
2. Androecium-gynoecium
3. Testosterone-estrogen
4. The female cell(Ovum)-zygote
5. Half-all
6. Cowper's – prostate
7. Estrogen – progesterone
8. A fruit – a seed
9. Filament – anther
10. Green – sepal
11. Zygote – 23
12. 28
13. Sepals – petals
14. Cutting, grafting and tissue culture
15. Sperm – testosterone
16. Androecium – gynoecium
17. Nucleus of sperm – nucleus of ovum
18. Head – tail
19. Fruits
20. Sperm – testis
21. A root – stem -tuber
22. High – low
23. Watt/m² – Decibel
24. Light speed
25. 20 – 20000
26. Regular reflection – irregular reflection
27. Strong – weak
28. Sharp – rough
29. Density of the medium – amplitude
30. 40°
31. 660 Hz
32. Refraction – normal
33. Mechanical
34. Real – apparent
35. Inversely – directly
36. Refractive index
37. Mirage - seeing objects higher than normal position
38. Broken
39. 65°
40. Doubled
41. The frequency of unknown tone
42. Frequency
43. Hertz – meter
44. 1
45. Crests – troughs
46. Compressions – rarefactions
47. Four
48. 600 sec.
49. Mechanical waves – electromagnetic waves
50. Sound
51. Time intervals
52. Simple harmonic motion
53. Mechanical
54. 0.24 sec.

2) Write scientific term for the following:

1. Flower
2. Calyx
3. Hermaphrodite
4. Stamens
5. Artificial pollination
6. testosterone
7. Corolla
8. Sacrotal sac
9. Zygote
10. Mixed pollination
11. Fertilization
12. Gynoecium
13. Male flower
14. Genital associated glands
15. Cutting
16. Tissue culture
17. Tissue culture
18. The fallopian tube
19. Chromosomes
20. Zygote
21. Light refraction
22. Infrasonic waves
23. Speed of light
24. Sound pitch
25. Sound intensity
26. Optical density
27. Mirage
28. Sound
29. Harmonic tones
30. Irregular reflection
31. Light reflection 1st law
32. Refraction angle
33. Sound inverse square law
34. Refraction angle
35. Periodic time
36. Amplitude
37. Frequency
38. Periodic time
39. The line of wave propagation
40. Periodic motion
41. Oscillatory motion
42. Rarefaction
43. crest

3) Choose the correct answer:

- | | | |
|-------|-------|-------|
| 1. c | 11. a | 21. a |
| 2. d | 12. b | 22. c |
| 3. a | 13. b | 23. b |
| 4. b | 14. b | 24. d |
| 5. c | 15. a | 25. c |
| 6. b | 16. c | 26. c |
| 7. d | 17. b | 27. b |
| 8. a | 18. a | 28. b |
| 9. b | 19. c | |
| 10. a | 20. b | |

4) Correct the underlined word:

- | | | |
|---------------|--------------------|------------------|
| 1. carpel | 8. progesterone | 15. Vas deferens |
| 2. androecium | 9. air | 16. Equals to |
| 3. two testis | 10. inflorescence | 17. Is more than |
| 4. half | 11. carpel | 18. 20 |
| 5. man | 12. sperm | 19. Ultrasonic |
| 6. testis | 13. fallopian tube | 20. Incidence |
| 7. asexual | 14. cutting | 21. Longitudinal |

5) What happens when?

1. It will germinate forming a pollen tube.
2. The sperm will die during passing through urethra.
3. The sperm will not have energy, so it will cannot move or attack the ovum.
4. No pregnancy will occur.
5. The pollen grain will not stick on stigma, and then pollen grain will not germinate.
6. The light rays are reflected in different directions (irregular reflection).
7. Sound velocity will decrease, since velocity of sound through solids is higher than the velocity of sound through liquids.
8. The frequency will decrease to half since ($v = F \times \lambda$).
9. The light ray will reflect on itself.
10. The light ray will pass without any refraction.
11. The sound intensity will decrease to its quarter.
12. The velocity will increase to its maximum.

13. The kinetic energy = zero because the velocity at the maximum displacement = zero ($K.E = \frac{1}{2} m v^2$).
14. The light ray will refract away from the normal.

6) *What is meant by?*

1. It is the transfer of pollen grains from flower anthers to stigma.
2. It is the transfer of pollen grains from the anthers of a flower to the stigmas of the same flower.
3. It is the transfer of pollen grains from the anthers of a flower to the stigmas of another flower in other plant of the same kind.
4. It is the type of pollination carried out by man like cutting, grafting, layering and tissue culture.
5. It is the fusion of the nucleus of male cell (pollen grain) with the nucleus of female cell (ovum) to form the zygote.
6. It is the cell resulting from the fusion of the nucleus of male cell (pollen grain) with the nucleus of female cell (ovum).
7. It is the flower which contains male reproductive organ (androecium) and female reproductive organ (gynoecium).
8. It is the process of multiplying a small part of a plant to get many identical parts.
9. It is the property by which the human ear can distinguish between sharp and rough sounds.
10. It is the property by which the human ear can distinguish between strong and weak sounds.
11. They are sound waves of frequencies ranges from 20 Hz: 20 KHz and can be heard by human ear.
12. It means that the ratio between the speed of light in air to the speed of light through water equals 1.33.
13. It is a natural phenomenon takes place on desert roads especially in the summer times where objects on the road side seems as if they have inverted image s on a wet area .
14. It is the angle between the emergent light ray and the normal at the point of emergence on the interface.
15. It is the rebounding of the light rays in the same medium on meeting a reflecting surface.
16. It is the change of light path when it travels from a transparent medium to another transparent medium of different optical density.
17. It is the ability of the transparent medium to refract light.
18. It is the motion of the oscillating body around its rest point, where the motion is repeated through equal time intervals.

19. It is the disturbance that propagates and transfer energy in the direction of propagation.
20. It means that the frequency of the oscillating body = 1.6 Hz.
21. It means that the distance between the centers of two successive compressions or refractions = 30 cm.

7) *Mention one use or function for the following:*

1. Protects the inner parts of flower especially before blooming.
2. Stores the sperm.
3. Produces ovules.
4. Protects the reproductive organ of flower.
5. Produces and holds pollen grains.
6. Production of female sex hormone (estrogen and progesterone).
7. Receive the ripe ovum and direct it to the uterus.
8. Production of male sex hormone (testosterone).
9. It regulates and keeps the temperature of the two testis two degrees below the normal body temperature which is suitable for growth and development of sperms.
10. Contain one half of the genetic material.
11. It contains mitochondria which responsible for the Production of the energy needed for the sperm movement.
12. Responsible for the appearance of secondary sex characters in male.
13. Responsible for the appearance of secondary sex characters in female.
14. Responsible for the occurrence and continuity of pregnancy.
15. Secrete a seminal fluid which nourishes the sperm, facilitate the flow of sperms and neutralize the acidity of urethra.
16. Sterilization of water, food and milk - breaking down of kidney and ureter stones.
17. Used to treat sprains and cramps by using hot water – nervous tension by using cold water.
18. Used in radars.

8) *Give reason for the following:*

1. To attract insects which help in reproduction process.
2. To direct the ripe ovum towards the uterus.

3. Because the sacrotal sac regulates and keeps the temperature of the two testis two degrees below the normal body temperature which is suitable for growth and development of sperms.
4. Because some of them contain only male reproductive organ (androecium only) and the others contain only female reproductive organ (gynoecium only).
5. To stick on the insect body.
6. Because the sound of thunder is mechanical wave and the light of thunder is electromagnetic wave, where the speed of electromagnetic waves is much higher than speed of mechanical wave.
7. Because in barley plant, the anthers and stigmas are matured at the same time , while in sunflowers the anthers and stigmas are not matured at the same time.
8. To make easy movement till reaches the ovum..
9. Because the placenta is responsible for the nourishment of fetus (through umbilical cord) during pregnancy.
10. Because it has thick muscular wall that is rich in blood capillaries which feed the embryo and supply it with oxygen and also protect the embryo until birth.
11. Because the ovary of the peach contains only one ovule, so it contains only one seed.
12. .to neutralize the acidity of urethra, so the sperms don't die during passing through urethra
13. Because the incidence angle = reflection angle = zero.
14. Due to refraction If light where the eye see the extension of the refracted rays.
15. Due to refraction If light where the eye see the extension of the refracted rays.
16. Because the sound of man has low frequency (low pitched) and the sound of woman has high frequency (highly pitched).
17. Because the density of carbon dioxide is higher than that of air, and the sound velocity increases by increasing density of the medium.
18. Because light is electromagnetic waves which does not need a medium to propagate through.
19. Because the speed of light through air is larger than the speed of light in any other transparent medium.
20. Because ultrasonic waves have the ability to kill some types of bacteria and stop the action of some viruses.
21. Because its motion is not repeated on the two sides of its rest position.
22. Because its motion is around its rest point through equal time intervals.
23. Because the sound of solar explosions is a mechanical wave which need a medium to propagate through, while light is electromagnetic wave which can propagate through vacuum.

9) Compare between:

Points of comparison	calyx	corolla
Leaves	-Green leaves -Each leaf is called a sepals	-Colored and scented leaves -Each leaf is called petal
function	-It protects the inner part of the flower especially before blooming.	-It protects the male and female reproductive organs of flowers. -Attract insects which help in reproduction process.

Points of comparison	sperm	ovum
Size	small	Relatively large
Mobility	mobile	Static (not mobile)
The structure	Consists of head, midpiece and tail.	Consists of nucleus, cytoplasm and cellular membrane.
The number	The testis produce large number	Each ovary produces one ripe ovum every 28 days in exchange with the other ovary

Unisexual flowers	Bisexual flowers
Contain only male reproductive organ or female reproductive organ.	Contain both male and female reproductive organs.
Contain (3) whorls	Contain (4) whorls
Examples :palms, maize and pumpkin	Examples :tulip, petunia and wallflower

Points of comparison	Regular reflection	Irregular reflection
definition	It is the reflection of light rays when they fall on a smooth glistening surface, where the incident light rays are reflected in one direction.	It is the reflection of light rays when they fall on a rough surface, where the incident light rays are reflected in different direction.
examples	A plane mirror. A stainless steel sheet.	A leaf of tree A piece of paper

Points of comparison	The sound of lion	The sound of sparrow
Sound pitch	Low pitched	High pitched
frequency	Low frequency	High frequency
amplitude	Lower amplitude	Higher amplitude

Points of comparison	Infrasonic waves	ultrasonic waves
frequency	They are sound waves of frequencies less than 20 Hz	They are sound waves of frequencies higher than 20 KHz
examples	The waves accompany the storms that precede rain fall	Some animals such as bats, dogs and dolphins can hear ultrasonic waves

Points of comparison	Mechanical waves	Electromagnetic waves
definition	They are waves which need a medium to propagate through.	They are waves which don't need a medium to propagate through.
properties	They don't propagate through vacuum	They can propagate through vacuum
velocity	Their velocity is relatively low	Their velocity is great (3×10^8)
examples	They are <ul style="list-style-type: none"> • Transverse waves : (as water waves) • Longitudinal waves: (as sound waves) 	They are all transverse waves as : <ul style="list-style-type: none"> -light waves -radio waves -x-ray

Points of comparison	Oscillatory motion	Wave motion
definition	It is the motion of the oscillating body around its rest point, where the motion is repeated through equal time intervals.	It is the motion produced as a result of the vibration of the medium particles at certain moment and in a definite direction.
examples	Pendulum motion Motion of spring	Sound waves Light waves

Points of comparison	Transverse wave	Longitudinal wave
Definition	Is the disturbance at which particles of the medium vibrate perpendicular to direction of wave propagation	Is the disturbance at which particles of the medium vibrate along to direction of wave propagation
Components	Crests and troughs	Compressions and rarefactions
Wavelength	The distance between two successive crests or troughs	The distance between the centers of two successive compressions or rarefactions.
examples	Water waves	Sound waves

10) What happens for each of the following after fertilization?

1. Becomes a fruit.
2. Becomes a seed.
3. Successive divisions to form the embryo.

11) Different types of questions:

1. a. number of waves = 2

$$\text{Wavelength} = \frac{\text{(distance covered by the waves)}}{\text{number of waves}} = \frac{20}{2} = 10 \text{ cm}$$

b. wave velocity = frequency x wavelength

Wave velocity = $150 \times 0.1 = 15 \text{ m/sec.}$

2. a. number of waves = 3

$$\text{Wavelength} = \frac{\text{(distance covered by the waves)}}{\text{number of waves}} = \frac{30}{3} = 10 \text{ meter}$$

b. wave length = $2 \times \text{the horizontal distance between the successive crest and trough}$

$$= 2 \times 8 = 16 \text{ meter}$$

3. a. (c)
 b. (b)
 c. (a)
 d. (c)
-

4. a. Reproductive organ of female.

- b. (1) → fallopian tube
 (2) → Uterus
 (3) → Ovary
 (4) → Uterus muscle
 (5) → Cervix
 (6) → Vagina
-

c.

- i. Ovary
 ii. Top of fallopian tube
 iii. Uterus
 iv. Vagina
 v. Ovary
-

5. a. Reproductive organ of male

- b. (1) → Testis
 (2) → Penis
 (3) → Urethra
 (4) → Vas deferens
 (5) → Urinary bladder
 (6) → Prostate gland
-

6. a. Typical flower (hermaphrodite)

- b. (1) → Pedicle
 (2) → Receptacle
 (3) → Sepal
 (4) → Petal
 (5) → Filament
-

- (6) → Anther
 (7) → Stigma
 (8) → Style
 (9) → Ovary

c. Carpel

d. Stamen

7. (1) bisexual (hermaphrodite) flower

- (2) Female flower (unisexual)
 (3) Male flower (unisexual)
-

8.
$$\text{Frequency} = \frac{d \text{ (number of cycles)} \times n \text{ (number of teeth)}}{t \text{ (time)}}$$

$$\text{Frequency} = \frac{960 \times 30}{120} = 240 \text{ Hz}$$

9. Frequency = $\frac{d \text{ (number of cycles)} \times n \text{ (number of teeth)}}{t \text{ (time)}}$

$$600 = \frac{300 \times n}{60} \rightarrow 600 \times 60 = 300 \times n$$

$$\text{Number of teeth (n)} = 120 \text{ teeth}$$

10. Wavelength = 4 m

$$\text{Periodic time} = 6 \text{ sec.} \rightarrow \text{Frequency} = \frac{1}{6} \text{ Hz}$$

$$\text{Amplitude} = 2 \text{ m}$$

$$\text{Wave velocity} = F \times \lambda = \frac{1}{6} \times 4 = 0.6 \text{ m/sec.}$$

11. Absolute refractive index of diamond = $\frac{\text{Speed of light through air}}{\text{Speed of light through diamond}}$

$$\text{Absolute refractive index of diamond} = \frac{3 \times 10^8}{1.5 \times 10^8} = 2$$

12. Wave velocity (v) = frequency (f) x wavelength (λ)

$$v = 200 \times 0.15 = 30 \text{ m/sec.}$$

حمل الآن

مجاناً وحصرياً

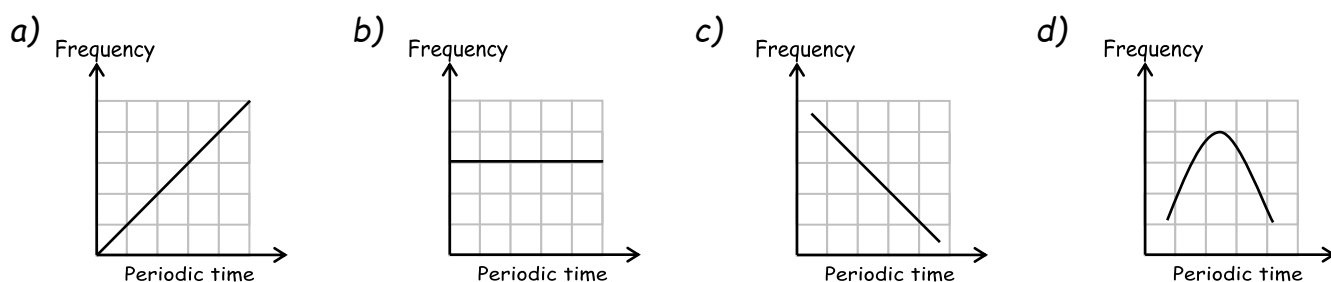
المراجعة رقم (3)

الترم الثاني



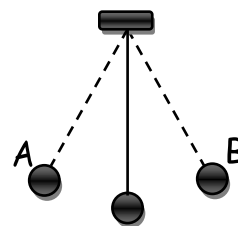
First - Thematic Questions:**1] Choose:**

- The time taken by the vibrating body to make one complete oscillation is
a) amplitude. b) frequency. c) periodic time. d) complete oscillation.
- The amplitude equals of a complete oscillation.
a) quarter b) half c) four times d) none of them
- Which graph from the following graphs represents the relation between frequency and periodic time?

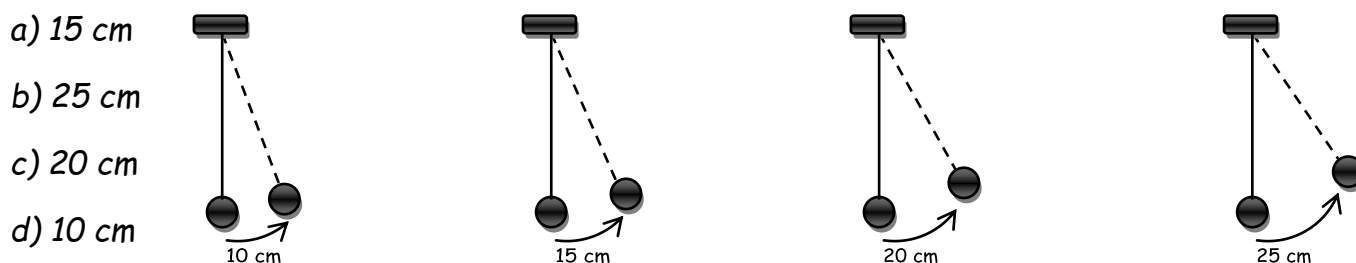


- The number of complete oscillation made by the oscillating body in one second is
a) amplitude. b) frequency. c) periodic time. d) complete oscillation.
- The maximum displacement made by the oscillating body away from its rest position is
a) amplitude. b) frequency. c) periodic time. d) complete oscillation.
- The result of multiplying the frequency of an oscillating body by its periodic time equals
a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{1}{8}$ d) 1

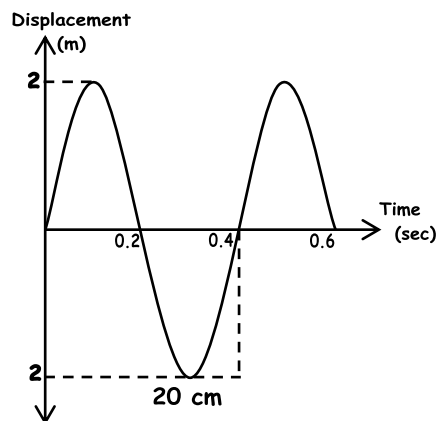
- In the opposite figure; when the ball of the pendulum moves from (A) to (B) in a duration of 0.02 second, the frequency equals Hz
a) 0.04 b) 0.02
c) 25 d) 50



- The following figures describe the oscillation of a simple pendulum of amplitude =



9. If the frequency of an oscillating body was 4 Hz, then the periodic time is seconds.
 a) 4 b) $\frac{1}{4}$ c) 2 d) $\frac{1}{2}$
10. The highest point of the particles of the medium in the transverse wave is known as
 a) crest b) compression c) rarefaction d) trough
11. The transverse wave consists of
 a) compressions and rarefactions b) crests and troughs
 c) crests and compressions d) rarefactions and troughs
12. The sound produced from the school's bell is considered waves.
 a) transverse b) longitudinal c) electromagnetic d) none of them
13. The longitudinal wave consists of
 a) compressions and rarefactions b) crests and troughs
 c) crests and compressions d) rarefactions and troughs
14. All of the following waves propagate through vacuum, except waves.
 a) light b) radio c) infrared d) sound
15. If the distance between the center of the third compression and the center of the fifth compression on the wave propagation is 20 cm, then the wavelength of this wave is
 a) 40 cm b) 20 cm c) 10 cm d) 5 cm
16. Study the figure, choose the correct answer from between the brackets:
 a) The periodic time = (0.2 s - 0.4 s - 0.6 s - 0.4 m)
 b) The frequency = (0.2 s - 0.4 Hz - 2.5 Hz - 0.4 m)
 c) The amplitude = (2 s - 0.4 m - 0.2 m - 2 m)
 d) Wavelength = (2 m - 20 m - 0.2 m - 0.2 Hz)
 e) Wave velocity = (5 m/s - 0.8 m/s - 0.5 m/s - 8 m/s)
17. The mathematical relation between velocity and wavelength is
 a) velocity = frequency \times wavelength b) velocity = wavelength \div frequency
 c) wavelength = frequency \div velocity d) no correct answer.



18. The opposite figure represents the (displacement in meters - time in seconds), from the drawing answer the following

A] The amplitude =

- a) 2 m b) 3 cm c) 4 m d) 8 cm

B] The periodic time =

- a) $\frac{1}{8}$ sec b) 0.25 sec c) 4 sec d) 8 sec

C] The frequency =

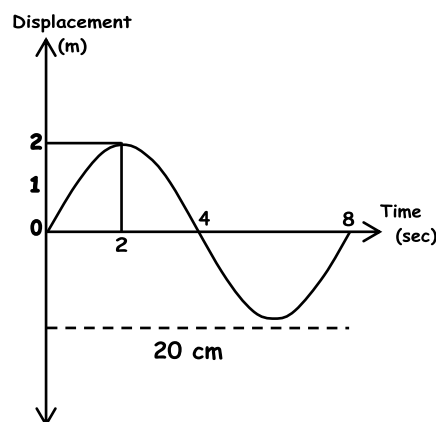
- a) $\frac{1}{8}$ Hz b) 0.25 Hz c) 4 Hz d) 8 Hz

D] The wavelength =

- a) 8 cm b) 20 cm c) 20 m d) 2 m

E] The wave velocity =

- a) 2.5 m/sec b) 25 m/sec c) 0.025 m/sec d) 0.25 m/sec



19. A sound wave covers 40 meters through 5 seconds with frequency 20 Hz, then the wave length of such wave equals

- a) 0.4 cm b) 0.4 meter c) 0.04 meter d) 4 meter

20. Velocity of sound in water equals m/sec.

- a) 340 b) 1500 c) 1850 d) 3×10^8

21. Jacuzzi is used for treatment of using cold water.

- a) nervous tension b) sprains c) cramps d) cancer

22. Sound of frequency 200 Hz is than the sound of frequency 100 Hz.

- a) stronger b) weaker c) sharper d) harsher

23. All the following are factors affecting the sound intensity except

- a) medium density b) frequency c) surface area d) wind direction

24. The unit of measuring sound intensity is

- a) m/sec b) watt/m² c) decibel d) Hertz

25. The unit of measuring noise intensity is

- a) meter b) watt/m² c) decibel d) Hertz

26. The amplitude of the harmonic tone is that of fundamental tone.

- a) smaller than b) larger than c) equals to d) a & b

27. The doctors use waves with frequency, to break down kidney and ureter stones.

- a) less than 20 Hz b) from 20 - 200 Hz c) more than 20 KHz d) 20 Hz

28. The light travels in lines.
a) straight lines b) curved c) circular d) zigzag
29. The distance that light travels in a second is
a) light frequency b) light speed c) light intensity d) light wave
30. The white light consists of spectrum colors.
a) five b) six c) seven d) nine
31. The photon energy = Plank's constant \times
a) photon frequency b) photon velocity c) light intensity d) light wavelength
32. The bodies that permit the passage of light are called bodies.
a) opaque b) transparent c) translucent d) reflecting
33. Which one from the following doesn't permit light to pass through it?
a) air b) milk c) clear water d) glass
34. In reflection, the reflected light rays are reflected in many directions.
a) uniform b) regular c) non-uniform d) total
35. The angle of incidence of light is its angle of reflection.
a) larger than b) smaller than c) equals to d) equal its double
36. When the reflection angle is 30° , it means that the angle of incidence is
a) 90° b) 30° c) 80° d) 40°
37. The absolute refractive index of any material is always
a) more than 1 b) less than 1 c) equals 1 d) equals 2
38. The pen seems broken, when it is put in a glass of water as a result of light
a) separation b) deviation c) refraction d) reflection
39. The ability of the transparent medium to refract light is called the of a medium.
a) refractive index b) density c) optical density d) velocity
40. The absolute refractive index of any material is always one.
a) more than b) less than c) equals to d) a or b
41. When the light ray travels from the more optically dense medium to the less optically dense medium, it refracts the normal.
a) towards b) away from c) on itself d) normally

42. The angle between the refracted light ray and the normal at the point of incidence on the separating surface is
- a) angle of reflection b) angle of refraction
c) angle of incidence d) angle of emergence
43. Inflorescence is a group of on one floral axle.
- a) fruits b) leaves c) seeds d) flowers
44. The green leaves surrounding the flower are
- a) carpel b) stamens c) sepals d) petals
45. The organ responsible for the formation of the ovule in the flower is the
- a) ovary b) anther c) corolla d) calyx
46. The male reproductive organ in the flower is
- a) gynoecium b) androecium c) calyx d) corolla
47. The consists of filament and anther.
- a) carpel b) petals c) sepal d) stamen
48. Floral whorl which is not found in the female flower is
- a) gynoecium b) androecium c) calyx d) corolla
49. Floral whorl which consists of petals
- a) gynoecium b) androecium c) calyx d) corolla
50. Pollination in colored and scented flowers often takes place by
- a) insects b) man c) water d) air
51. The fusion of the male cell nucleus (pollen grain) with the female cell nucleus (egg) in another flower to form a zygote called
- a) auto pollination b) self-pollination c) mixed pollination d) fertilization
52. The bisexual flowers contains
- a) only stamens b) only carpels c) stamens & carpels d) only calyx
53. The number of whorls in ♂ flower is
- a) two b) three c) four d) five
54. After fertilization, the ovule develops into
- a) ovary b) fruit c) seed d) seed coat
55. In grafting, the fruit belongs to the
- a) cut b) zygote c) stock d) scion

56. All of the following are organs of male reproductive system, except
- a) vas deferens b) uterus c) testes d) penis
57. The ovary in female human releases one ripe ovum every days.
- a) 14 b) 28 c) 34 d) 56
58. hormone is responsible for the continuity of pregnancy.
- a) Testosterone b) Estrogen c) Insulin d) Progesterone
59. The hormone in males is responsible for the appearance of secondary sex characters.
- a) testosterone b) estrogen c) insulin d) progesterone
60. The sperm consists of, middle part and tail.
- a) head b) prostate c) cilia d) membrane
61. The ovum is fertilized in
- a) ovary b) uterus c) fallopian tubes d) vas deferens

⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘

2] Put (✓) or (X):

- The velocity of oscillating body is maximum when it reaches the maximum displacement. ()
- The simple harmonic motion is considered the simplest form of oscillatory motion. ()
- The motion of stretched string is a wave motion. ()
- The swing is an example for periodic motion. ()
- The amplitude is measured in meter. ()
- The periodic time is the time taken by the oscillating body to make one complete oscillation. ()
- Frequency is the number of complete oscillations produced by the oscillating body. ()
- The frequency is the reciprocal of the periodic time. ()
- The simple pendulum is an example for wave motion. ()
- The particles of the medium vibrate along the direction of the wave propagation in the transverse wave. ()
- Crest is the highest point of the particles of the medium in the transvers wave. ()
- In Jacuzzi, water moves in the form of transverse waves. ()
- The wavelength for a transverse wave is the distance between a crest and a trough. ()
- The wavelength for a longitudinal wave is the distance between the center of the first crest and the center of the second crest. ()

Final Revision Sheet

15. Amplitude of a wave is the time taken for one wave. ()
16. Sound velocity through liquids is more than that through gases. ()
17. The measuring unit of sound intensity is watt/m². ()
18. The sound intensity decreases, when the source touches a resonance box. ()
19. Fundamental tone's intensity is lower than that of harmonic tone. ()
20. The wavelength of visible light ranges between 380:700 nanometers. ()
21. In uniform reflection, the light rays are reflected directly in one direction. ()
22. The red light refracts near to the prism base. ()
23. The light ray refracts near to the normal, when it travels from air to glass. ()
24. As optical density of the medium increases, the speed of light through it increases. ()
25. The absolute refractive index of any transparent medium is always greater than one. ()
26. The fish is seen lower than its real position in the fish tank. ()
27. The corolla consists of bright colored scented leaves. ()
28. The carpel of flower consists of filament and anther. ()
29. Auto (self) pollination occurs in barley plant. ()
30. The anthers of air pollinated flowers are feathery like and sticky. ()
31. Vegetative reproduction is a type of sexual reproduction. ()
32. Man can't reproduce asexually. ()
33. Each ovary produces only one ripe ovum every 28 days in exchange with other ovary. ()
34. The ovum is mobile of a relatively large size. ()
35. The pregnancy in human beings takes about 9 months. ()



3] Correct the underlined words:

1. The transitional motion is the motion repeated through equal intervals of time.
2. The kinetic energy of the simple pendulum decreases by increasing its velocity.
3. Rotary bee and tuning fork produce oscillatory motion.
4. Complete oscillation consists of $\frac{1}{4}$ amplitude.
5. Periodic time is the number of complete oscillation in one second.
6. The highest point in transverse wave is called compression.
7. The trough of transverse wave is equivalent to the center of compression of the longitudinal wave.

8. Speed of sound in water is slower than in air.
9. Light wave and sound wave are electromagnetic waves.
10. The distance between two successive crests or troughs is the wavelength of longitudinal wave.
11. The measuring unit of wavelength (λ) is kilogram.
12. The distance between the first crest and third crest of a wave is 20 cm so the wavelength of this wave is 20 cm.
13. Piano and the drill produce musical tones.
14. Sound pitch is increased by decreasing density of medium.
15. The intensity of sound is measured in Hertz.
16. The sound intensity decreases by increasing the density of the medium.
17. Sound travelling in air has more intensity than that in carbon dioxide.
18. Infrasonic waves are used in sterilizing food.
19. The energy of the light photon depends on its wavelength.
20. When the distance between the source of light and the surface decreases to its half value, the light intensity of the surface increases to double.
21. Flint glass is a transparent material.
22. Light travels in curved lines.
23. Blue light color has the lowest energy and longest wavelength.
24. In regular reflection: the angle of incidence is more than the angle of reflection.
25. Light reflects when it travels from a transparent medium to another one of different optical density.
26. When a beam of light falls inclined from air to water, the angle of incidence is equal to the angle of refraction.
27. The angle of incidence is greater than the angle of reflection.
28. Bract is a group of flowers arranged on same axle.

29. Palm trees have bisexual flowers.
30. The pollen grains of insect pollinated flower are smooth.
31. The ovule is developed into fruit after fertilization.
32. The tuber may be a stem as in sweet potato.
33. Ovary, fallopian tube, uterus and testes are components of the female reproductive system.
34. The male gamete contains quarter of the genetic material.
35. Zygote carries half the number of chromosomes.
36. The ovum consists of head, middle part and tail.
37. Syphilis disease is caused by spherical bacteria.



4] Write the scientific term:

1. The motion which is repeated regularly in equal time intervals.
2. The periodic motion made by a body around its point of rest.
3. The maximum displacement made by oscillating body away from its original point.
4. The motion of the oscillating body at the two sides of its rest point two successive times at the same direction.
5. The number of complete oscillations done in one second.
6. The measuring unit of the periodic time.
7. The measuring unit of frequency.
8. Time taken by the oscillating body to make one complete oscillation.
9. A disturbance propagates and transfers energy along the direction of propagation.
10. The wave in which medium particles vibrate in a direction perpendicular to the direction of wave propagation.
11. Maximum displacement achieved by medium particles upward.
12. The area of the lowest density and pressure in the longitudinal wave.

13. The wave which needs medium to travel through.
14. Physiotherapy tub used for treatment of sprains and cramps using hot water.
15. It is an external factor that affects the ear causing the sense of hearing.
16. A tone of regular frequency that is produced from the reed pipe.
17. A property by which the ear can distinguish harsh and sharp voice.
18. A property by which the ear can distinguish weak and strong voice.
19. A property by which the ear can distinguish sounds of different sources even if they were equal in the intensity and pitch.
20. The tones accompanying the fundamental tone are higher in pitch and less in intensity.
.....
21. The sound waves have frequency less than 20 Hz.
22. Sound waves that can be heard by bats but can't be heard by human.
23. One of the components of the electromagnetic spectrum of wavelength ranges between 380:700 nanometers.
24. The distance covered by light in one second.
25. A physical quantity equal the multiplication of Plank's constant \times frequency.
26. The scientist who proved that the energy of the photon depends on its frequency.
.....
27. A tool used in the analysis of light.
28. Bodies allow the passage of most light rays through them.
29. Bodies don't allow the passage of light through them.
30. Bodies allow the passage of a part of light through them and absorb the rest part.
.....
31. The amount of light falling perpendicularly on a unit area from a surface in one second.
.....

32. The light intensity is inversely proportional to square of the distance between the surface and the light source.
33. The returning back of light rays to the same medium upon meeting a reflecting surface.
34. The angle between the reflected light ray and the normal line at the point of incidence.
35. The angle between the incident light ray and the normal line at the point of incidence on the reflecting surface.
36. The angle of incidence = the angle of reflection.
37. The incident ray, the reflected ray and the normal line at the point of incidence all lie in the same plane perpendicular to the reflecting surface.
38. Changing of light ray path when moving from a transparent medium to another transparent medium.
39. The ability of the medium to refract the light.
40. The angle between the emergent light ray and the normal line at the point of emergence on the interface.
41. The ratio of the light velocity in air to its velocity in any other medium.
42. A phenomenon appears in the desert at noon in hot summer days where objects on the road sides seem to have reflected images on a wet area.
43. Short stem where leaves developed and modified into reproductive organs.
44. A group of colored leaflets surrounding the flower.
45. A floral whorl its function to protect the inner parts of the flower.
46. The fusion of male nucleus (pollen grain) with the nucleus of an ovum.
47. The flower that contains gynoecium only.
48. The male reproductive organ in the flower.
49. The resulted cell of the fusion of the pollen grain nucleus with the egg nucleus.

50. Transferring of pollen grains from the anthers of a flower to the stigma of another flower.
.....

51. The flower that contains male and female organs together.

52. The reproduction of some plants by parts of the roots, stem or leaves.

53. The usage of a piece of a plant stem for reproduction.

54. The male sex hormone in human that is responsible for the appearance of the male
secondary sex characteristics.

55. A tube that helps to transfer the sperms from testes to urethra.

56. Two tubes of funnel shaped opening provided with finger like projections and lined with
cilia.

57. A pear shaped hollow organ in the female genital system.

58. A muscular tube between the uterus and the external genital opening.

59. The male gamete in human that carries half the number of chromosomes.

60. A disease caused by spiral bacteria and transfer through illegal sexual contact.

61. The period of time between the occurrence of infection and the appearance of symptoms of
the disease.



5] Cross out the odd word, then write the relation between the others:

1. Pendulum motion - spring motion - rotary motion - string motion.

2. Tuning fork - simple pendulum - spring - water.

3. MHz - Hz - m/sec - GHz.

4. Water wave - radio wave - light wave - infrared wave.

5. Frequency - wavelength - displacement - wave velocity.

6. 1×10^6 Nanometer - 1×10^3 micrometer - 1×10^{-3} meter - 1×10^{-3} micrometer.

7. Reed pipe - drill - piano - violin.

8. Sound quality - sound intensity - sound pitch - sound speed.

9. Distance - amplitude - density of medium - energy of photon.
10. 3 Hz - 30 Hz - 300 Hz - 3000 Hz.
11. Red - white - yellow - orange.
12. Glass - water - air - wood.
13. Mirror - stainless steel - foil paper - leaves.
14. Calyx - seed - corolla - stamen.
15. Stigma - stamen - style - ovary.
16. Olive - peas - beans - watermelon.
17. Rhizomes - corms - grafting - bulbs.
18. Cutting - pollination - tissue culture - grafting.
19. Fallopian tubes - scrotum - vas deferens - testes.
20. Seminal vesicles - prostate gland - pancreas gland - Cowper's gland.
21. Prostate - fallopian tube - uterus - ovary.
22. Sperm - ovum - zygote - pollen grain.
23. Head - tail - mid-piece - tube nucleus.

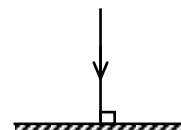


6] **Complete:**

1. There are two types of periodic motion which are and motion.
2. The simple harmonic motion is an example of motion.
3. The velocity of the oscillating body is maximum, when it passes through
4. The maximum displacement made by the oscillating body is called
5. The amplitude measuring unit is while that of frequency is
6. A complete oscillation comprises successive displacements, each one is called
7. When a body completes 600 complete cycles per minute, the frequency will be =
8. The Hertz is the measuring unit of

9. Frequency = \div periodic time.
10. The longitudinal waves consists of and
11. The transverse waves consists of and
12. The mechanical waves are classified into and
13. The in the transverse wave is corresponding to compression in longitudinal wave.
14. In the waves, the particles of the medium oscillate along the direction of propagation.
15. In the waves, the particles of the medium oscillate perpendicular to the direction of propagation.
16. The wavelength of the wave is the distance between two successive or troughs
17. The wavelength of longitudinal wave is the distance between of two successive compressions or
18. Wave velocity = wavelength \times
19. Wave velocity = wavelength \div مين الشاطر اللي هيعرف
20. The sound originates from bodies.
21. The sound is considered from the waves, because it needs a medium.
22. Sound pitch is a property by which the ear can distinguish between and voices.
23. The Savart's wheel is used in determining of unknown tone.
24. Sound intensity at a certain point is proportional to the square of the distance between this point and the sound source, and is proportional with the square of amplitude.
25. The sound velocity is measured in while the sound intensity is measured in
26. From the factors affecting the sound intensity are and

27. The human ear could hear the sound that its frequency ranges between and Hz.
28. As the amplitude increases, the sound intensity
29. The frequency of sonic waves is between Hz and Hz.
30. The frequency of ultrasonic waves is more than Hz while the frequency of infrasonic waves is less than Hz.
31. Light intensity on a surface is proportional with square distance between the source and this surface, this relation is called
32. The light intensity is the amount of light falling on the unit area in
33. The light velocity is the covered by light in
34. The transparent medium light to pass through it, while the opaque medium the light back in the same medium.
35. The photon energy = \times
36. The light is a type of waves that propagate in vacuum with speed = m/sec.
37. The red light has the lowest and the longest
38. The violet light exits from the triangular prism towards the because it has the greatest
39. The light reflection is classified into two types which are and reflection.
40. When you look at a coin in a glass of water, its position appears to be higher than the position.
41. When a light ray falls as in the figure on a mirror, it where its angle of incidence equals to
42. Due to the refraction of light, objects in water have an position that is than their real position.



43. A flower arises from a bud, usually emerging from the axle of a leaf known as
44. Hermaphrodite flowers take the symbol while male flowers takes the symbol
45. The floral leaves of calyx have color and each one is called
46. The male reproductive organ in the flower consists of, while the female reproductive organ consists of
47. The component of the flower are protected by leaflets called
48. Fertilization is the process of fusing the male cell nucleus (pollen grain) with a nucleus to form
49. The bisexual flower contains whorls but the male flower contains whorls.
50. From the ways of artificial vegetative reproduction and
51. Sweet potato is considered as, while the potatoes are
52. The hormone in male and hormone in female are responsible for the appearance of secondary sex characters in human.
53. Testes produce and secrete hormone.
54. The pear-shaped hollow organ found in the pelvic cavity of a female's body is and it protects the until birth.
55. The human zygote results from the fusion of and
56. The mid-piece of sperm contains which are responsible for production needed for the sperms movement.
57. From the associated glands of the male reproductive system and glands.
58. The male gamete in human is while the male gamete in plant is
59. Fertilization occurs in when the ovary produces a ripe ovum after days of the beginning of menstrual cycle.



7] Give one example for:

1. *Oscillating body.*
2. *Mechanical wave.*
3. *Electromagnetic wave.*
4. *Transverse wave.*
5. *Longitudinal wave.*
6. *Physiotherapy tub used for treatment of nervous tension.*
7. *Type of electromagnetic waves used in radar.*
8. *A device produces musical tone.*
9. *A device produces noise.*
10. *Type of sound waves accompanies blowing of storms.*
11. *An animal can hear ultrasonic waves.*
12. *Transparent material.*
13. *Translucent material.*
14. *Opaque material.*
15. *Spectrum color.*
16. *A tool can analyze the white light.*
17. *A smooth surface that regularly reflect light.*
18. *A rough surface that causes irregular reflection of light.*
19. *A material has higher optical density than air.*
20. *A floral whorl.*
21. *A bisexual flower.*
22. *A unisexual flower.*
23. *A fruit with many seeds.*
24. *A plant its flower has one ovule only in the ovary.*
25. *A plant produces tubers.*

26. A plant increased by cutting.
27. A plant increased by grafting by attachment.
28. A female reproductive organ.
29. A male reproductive organ.
30. A female sex hormone.
31. A female sign of puberty.
32. A male sex hormone.
33. A male sign of puberty.
34. A gamete cell.
35. A disease transfers by sexual contact.



8] What does the number indicate:

1. (340 m/sec).
2. (1500 m/sec).
3. (1850 m/sec).
4. (3×10^8 m/sec).
5. (20 : 20,000 Hz).
6. (380 : 700 nanometer).
7. (23 chromosomes).
8. (46 chromosomes).
9. (9 month).
10. (1 ~ 4 days).
11. (2 ~ 3 weeks).



9] Write the number which indicates each of the following:

1. The number of amplitudes in one complete oscillation.
2. The number of Hz in one megahertz.
3. The product of multiplying frequency and periodic time.
4. The velocity by which light travels in space.
5. The velocity of sound through air.
6. The velocity of sound through water.
7. The velocity of sound through wood.
8. The frequency of infrasonic waves.
9. The frequency of sonic waves.
10. The frequency of ultrasonic waves.
11. The wavelength range of visible light.
12. The number of spectrum colors.
13. The angle of incidence if the angle of reflection = zero.
14. The number of whorls in a typical flower.
15. The number of whorls in a unisexual flower.
16. The number of pollen chambers in one anther.
17. The number of pollen grains produced by air pollinated plants.
18. The number of male nuclei in pollen grain during germination.
19. The number of seeds in olive fruit.
20. The number of types of associated glands in male reproductive system.
21. The number of ovaries in female human.
22. The number of days between each ovulation time.
23. The number of days between each ovulation time from one ovary.
24. The number of months of pregnancy.
25. The age of starting menstrual cycle.

26. The age of menopause.
27. The number of chromosome in human sperm.
28. The number of chromosome in human ovum.
29. The number of sperms that fertilize the ovum.
30. The number of chromosome in human fertilized ovum (zygote).
31. The day at which the ovary produces the ripe ovum after starting of menstrual cycle.
32. The incubation period of puerperal sepsis.
33. The incubation period of syphilis.



10] Mention the difference between each pair as shown between brackets:

1. Transverse and longitudinal waves. [composition]
.....
.....
2. Savart's wheel and triangular glass prism. [use]
.....
.....
3. Musical tones and noise. [frequency]
.....
.....
4. Light and sound waves. [type of wave]
.....
.....
5. Sound and noise intensity. [measuring unit]
.....
.....
6. Infrasonic and ultrasonic waves. [frequency]
.....
.....

7. *Water and sound waves. [type of wave]*

.....

.....

8. *Calyx and corolla. [color of leaves]*

.....

.....

9. *Cutting and grafting. [examples]*

.....

.....

10. *Sperm and ovum. [size]*

.....

.....

11. *Syphilis and puerperal sepsis. [incubation period]*

.....

.....



Second - Essay Questions:

11] What happens?

1. *The decrease in the frequency of a sound wave. (concerning its pitch)*

.....

.....

2. *When the distance between a sound source and the ear increases to double. (concerning sound intensity)*

.....

.....

3. *Light ray falls perpendicular on the interface between air and water.*

.....

.....

4. *The vibration of medium particles in a direction perpendicular to the direction of wave propagation.*

.....

5. *The wavelength is doubled at constant velocity concerning the frequency.*

.....

.....

6. *Decreasing the amplitude of sound wave to its half concerning its intensity.*

.....

.....

7. *The vibration of the particles of a medium along the direction of wave propagation.*

.....

.....

8. *Light ray falls perpendicular on a reflecting surface.*

.....

.....

9. *A pollen grain falls on the stigma of a flower on the same plant.*

.....

.....

10. *Ovary and ovule of the flower after fertilization.*

.....

.....

⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘

2] What is meant by:

1. *The oscillating body makes 30 oscillations in one second.*

.....

2. *The distance between 2 successive crests = 300 nanometer.*

.....

3. The frequency of a sound wave = 2 MHz.

.....

.....

4. The absolute refractive index of diamond is 2.4

.....

.....

5. The wavelength of a light wave = 450 nanometers.

.....

.....

6. The maximum displacement made by the oscillating body = 3 cm.

.....

.....

7. The incubation period of a disease is 2 weeks.

.....

.....



3] Give reasons:

1. Oscillatory motion is considered as a periodic motion.

.....

2. The water wave is considered a transverse wave.

.....

.....

3. Sound can be heard from all surrounding directions.

.....

.....

4. The energy of red light photon is less than that of orange light photon.

.....

.....

5. The ray falling perpendicular on the reflecting surface reflects on itself.

.....

6. The petals of corolla are colorful and scented.

.....

7. Palm flowers are unisexual.

.....

8. Auto pollination can't happen in sunflowers.

.....

.....

9. The ovum is relatively large in size.

.....

.....

10. The mid-piece of sperm contains mitochondria.

.....

.....



4] Problems:

1. Calculate the frequency of a musical tone similar to the tone produced from a Savart's wheel rotating with a velocity of 960 revolution in 2 minutes, knowing that the number of gear teeth = 30

.....

.....

.....

2. A simple pendulum makes 75 complete oscillations in 15 seconds, calculate its frequency and periodic time.

.....

.....

.....

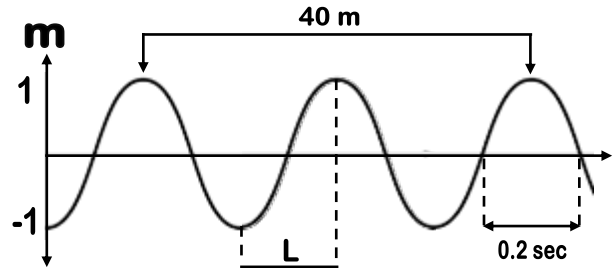
3. Calculate the wavelength in meter for a visible light wave of frequency 6×10^{14} Hz and velocity 3×10^8 m/sec.

.....

.....

4. From the opposite figure, find;

- a) Wavelength =
- b) Periodic time =
- c) Frequency =
- d) Amplitude =
- e) Wave velocity =
- f) The distance (L) represents



5. Calculate the wavelength of a sound wave propagating in sea water with velocity 1500 m/sec, knowing that the frequency of the wave is 10 kilohertz.

.....

.....

.....

6. Calculate the velocity of light in glass given that the velocity of light in air equals 3×10^8 m/sec and the absolute refractive index of glass is 1.5.

.....

.....

.....

7. Sound waves have frequency 400 Hz in air and its wave length is 85 cm, calculate the velocity of these waves.

.....

.....

.....



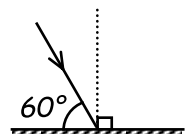
5] Mention one importance or use:

1. Radio wave.
2. Jacuzzi.
.....
3. Savart's wheel.
4. Resonance box in musical instruments.
5. Ultrasonic waves in Medical field.
.....
6. Ultrasonic waves in Industrial field.
.....
7. Triangular glass prism.
.....
8. Anther.
9. Corolla.
10. Calyx.
11. Androecium.
12. Feathery stigma.
13. Testes.
14. Vas deferens.
15. Human ovaries.
16. Uterus.
17. Progesterone.
18. Tail of sperm.



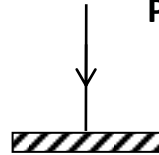
6] Study the figure, then answer:

1. The angle of reflection of the light ray in the figure =



Final Revision Sheet

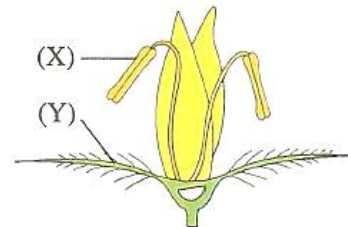
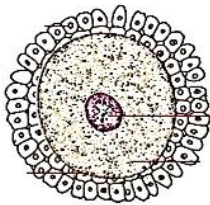
2. The angle of reflection of the light ray in the figure =



3. Write the sex of each flower.



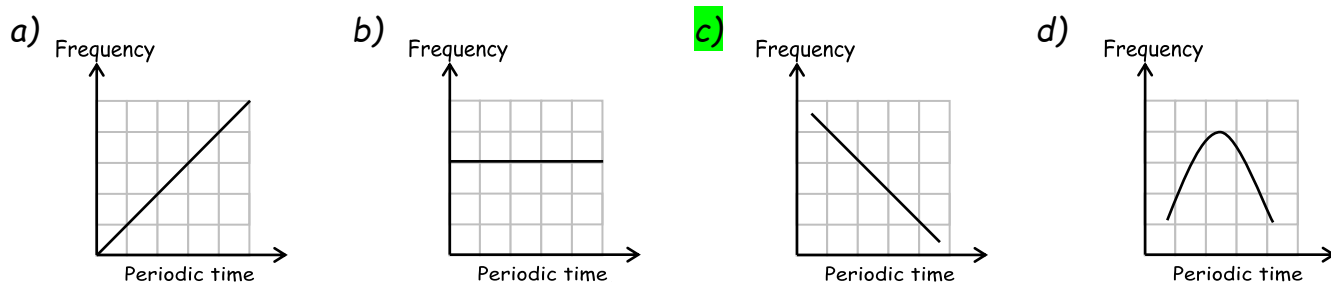
4. Write the name of the figure.



Good Luck

First - Thematic Questions:**1] Choose:**

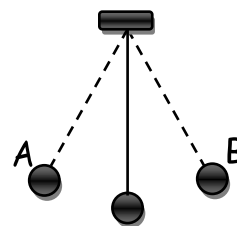
- The time taken by the vibrating body to make one complete oscillation is
a) amplitude. b) frequency. c) **periodic time.** d) complete oscillation.
- The amplitude equals of a complete oscillation.
a) **quarter** b) half c) four times d) none of them
- Which graph from the following graphs represents the relation between frequency and periodic time?



- The number of complete oscillation made by the oscillating body in one second is
a) amplitude. b) **frequency.** c) periodic time. d) complete oscillation.
- The maximum displacement made by the oscillating body away from its rest position is
a) **amplitude.** b) frequency. c) periodic time. d) complete oscillation.
- The result of multiplying the frequency of an oscillating body by its periodic time equals
a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{1}{8}$ d) **1**

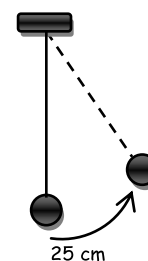
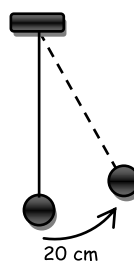
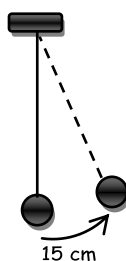
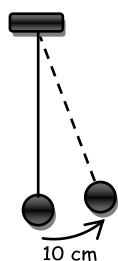
- In the opposite figure; when the ball of the pendulum moves from (A) to (B) in a duration of 0.02 second, the frequency equals Hz

- a) 0.04 b) 0.02
c) **25** d) 50

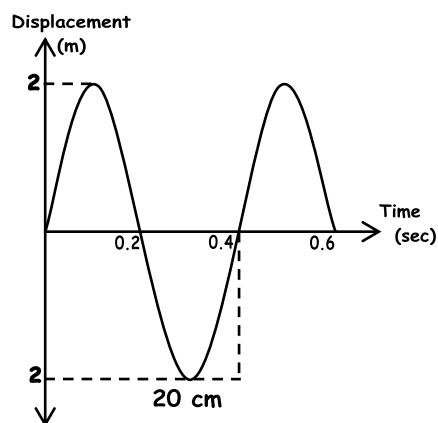


- The following figures describe the oscillation of a simple pendulum of amplitude =

- a) 15 cm
b) **25 cm**
c) 20 cm
d) 10 cm



9. If the frequency of an oscillating body was 4 Hz, then the periodic time is seconds.
 a) 4 b) $\frac{1}{4}$ c) 2 d) $\frac{1}{2}$
10. The highest point of the particles of the medium in the transverse wave is known as
 a) **crest** b) compression c) rarefaction d) trough
11. The transverse wave consists of
 a) compressions and rarefactions b) **crests and troughs**
 c) crests and compressions d) rarefactions and troughs
12. The sound produced from the school's bell is considered waves.
 a) transverse b) **longitudinal** c) electromagnetic d) none of them
13. The longitudinal wave consists of
 a) **compressions and rarefactions** b) crests and troughs
 c) crests and compressions d) rarefactions and troughs
14. All of the following waves propagate through vacuum, except waves.
 a) light b) radio c) infrared d) **sound**
15. If the distance between the center of the third compression and the center of the fifth compression on the wave propagation is 20 cm, then the wavelength of this wave is
 a) 40 cm b) 20 cm c) **10 cm** d) 5 cm
16. Study the figure, choose the correct answer from between the brackets:
 a) The periodic time = (0.2 s - **0.4 s** - 0.6 s - 0.4 m)
 b) The frequency = (0.2 s - 0.4 Hz - **2.5 Hz** - 0.4 m)
 c) The amplitude = (2 s - 0.4 m - 0.2 m - **2 m**)
 d) Wavelength = (2 m - 20 m - **0.2 m** - 0.2 Hz)
 e) Wave velocity = (5 m/s - 0.8 m/s - **0.5 m/s** - 8 m/s)
17. The mathematical relation between velocity and wavelength is
 a) **velocity = frequency \times wavelength** b) velocity = wavelength \div frequency
 c) wavelength = frequency \div velocity d) no correct answer.



18. The opposite figure represents the (displacement in meters - time in seconds), from the drawing answer the following

A] The amplitude =

- a) 2 m b) 3 cm c) 4 m d) 8 cm

B] The periodic time =

- a) $\frac{1}{8}$ sec b) 0.25 sec c) 4 sec d) 8 sec

C] The frequency =

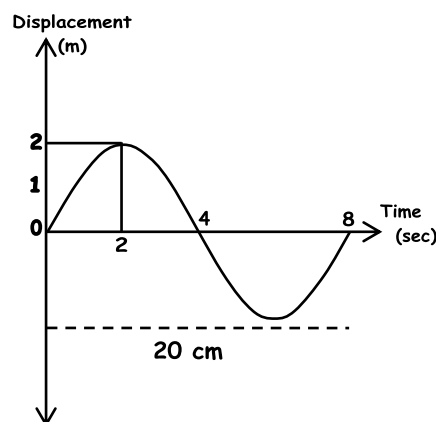
- a) $\frac{1}{8}$ Hz b) 0.25 Hz c) 4 Hz d) 8 Hz

D] The wavelength =

- a) 8 cm b) 20 cm c) 20 m d) 2 m

E] The wave velocity =

- a) 2.5 m/sec b) 25 m/sec c) 0.025 m/sec d) 0.25 m/sec



19. A sound wave covers 40 meters through 5 seconds with frequency 20 Hz, then the wave length of such wave equals

- a) 0.4 cm b) 0.4 meter c) 0.04 meter d) 4 meter

20. Velocity of sound in water equals m/sec.

- a) 340 b) 1500 c) 1850 d) 3×10^8

21. Jacuzzi is used for treatment of using cold water.

- a) nervous tension b) sprains c) cramps d) cancer

22. Sound of frequency 200 Hz is than the sound of frequency 100 Hz.

- a) stronger b) weaker c) sharper d) harsher

23. All the following are factors affecting the sound intensity except

- a) medium density b) frequency c) surface area d) wind direction

24. The unit of measuring sound intensity is

- a) m/sec b) watt/m² c) decibel d) Hertz

25. The unit of measuring noise intensity is

- a) meter b) watt/m² c) decibel d) Hertz

26. The amplitude of the harmonic tone is that of fundamental tone.

- a) smaller than b) larger than c) equals to d) a & b

27. The doctors use waves with frequency, to break down kidney and ureter stones.

- a) less than 20 Hz b) from 20 - 200 Hz c) more than 20 KHz d) 20 Hz

28. The light travels in lines.
a) **straight** b) curved c) circular d) zigzag
29. The distance that light travels in a second is
a) light frequency b) **light speed** c) light intensity d) light wave
30. The white light consists of spectrum colors.
a) five b) six c) **seven** d) nine
31. The photon energy = Plank's constant \times
a) **photon frequency** b) photon velocity c) light intensity d) light wavelength
32. The bodies that permit the passage of light are called bodies.
a) opaque b) **transparent** c) translucent d) reflecting
33. Which one from the following doesn't permit light to pass through it?
a) air b) **milk** c) clear water d) glass
34. In reflection, the reflected light rays are reflected in many directions.
a) uniform b) regular c) **non-uniform** d) total
35. The angle of incidence of light is its angle of reflection.
a) larger than b) smaller than c) **equals to** d) equal its double
36. When the reflection angle is 30° , it means that the angle of incidence is
a) 90° b) **30°** c) 80° d) 40°
37. The absolute refractive index of any material is always
a) **more than 1** b) less than 1 c) equals 1 d) equals 2
38. The pen seems broken, when it is put in a glass of water as a result of light
a) separation b) deviation c) **refraction** d) reflection
39. The ability of the transparent medium to refract light is called the of a medium.
a) refractive index b) density c) **optical density** d) velocity
40. The absolute refractive index of any material is always one.
a) **more than** b) less than c) equals to d) a or b
41. When the light ray travels from the more optically dense medium to the less optically dense medium, it refracts the normal.
a) towards b) **away from** c) on itself d) normally

42. The angle between the refracted light ray and the normal at the point of incidence on the separating surface is
- a) angle of reflection b) **angle of refraction**
c) angle of incidence d) angle of emergence
43. Inflorescence is a group of on one floral axle.
- a) fruits b) leaves c) seeds d) **flowers**
44. The green leaves surrounding the flower are
- a) carpel b) stamens c) **sepals** d) petals
45. The organ responsible for the formation of the ovule in the flower is the
- a) **ovary** b) anther c) corolla d) calyx
46. The male reproductive organ in the flower is
- a) gynoecium b) **androecium** c) calyx d) corolla
47. The consists of filament and anther.
- a) carpel b) petals c) sepal d) **stamen**
48. Floral whorl which is not found in the female flower is
- a) gynoecium b) **androecium** c) calyx d) corolla
49. Floral whorl which consists of petals
- a) gynoecium b) androecium c) calyx d) **corolla**
50. Pollination in colored and scented flowers often takes place by
- a) **insects** b) man c) water d) air
51. The fusion of the male cell nucleus (pollen grain) with the female cell nucleus (egg) in another flower to form a zygote called
- a) auto pollination b) self-pollination c) mixed pollination d) **fertilization**
52. The bisexual flowers contains
- a) only stamens b) only carpels c) **stamens & carpels** d) only calyx
53. The number of whorls in ♂ flower is
- a) two b) **three** c) four d) five
54. After fertilization, the ovule develops into
- a) ovary b) fruit c) **seed** d) seed coat
55. In grafting, the fruit belongs to the
- a) cut b) zygote c) stock d) **scion**

56. All of the following are organs of male reproductive system, except

- a) vas deferens b) uterus c) testes d) penis

57. The ovary in female human releases one ripe ovum every days.

- a) 14 b) 28 c) 34 d) 56

58. hormone is responsible for the continuity of pregnancy.

- a) Testosterone b) Estrogen c) Insulin d) Progesterone

59. The hormone in males is responsible for the appearance of secondary sex characters.

- a) testosterone b) estrogen c) insulin d) progesterone

60. The sperm consists of, middle part and tail.

- a) head b) prostate c) cilia d) membrane

61. The ovum is fertilized in

- a) ovary b) uterus c) fallopian tubes d) vas deferens

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2] Put (✓) or (X):

- The velocity of oscillating body is maximum when it reaches the maximum displacement. (X)
- The simple harmonic motion is considered the simplest form of oscillatory motion. (✓)
- The motion of stretched string is a wave motion. (X)
- The swing is an example for periodic motion. (✓)
- The amplitude is measured in meter. (✓)
- The periodic time is the time taken by the oscillating body to make one complete oscillation. (✓)
- Frequency is the number of complete oscillations produced by the oscillating body. (X)
- The frequency is the reciprocal of the periodic time. (✓)
- The simple pendulum is an example for wave motion. (X)
- The particles of the medium vibrate along the direction of the wave propagation in the transverse wave. (X)
- Crest is the highest point of the particles of the medium in the transvers wave. (✓)
- In Jacuzzi, water moves in the form of transverse waves. (X)
- The wavelength for a transverse wave is the distance between a crest and a trough. (X)
- The wavelength for a longitudinal wave is the distance between the center of the first crest and the center of the second crest. (X)
- Amplitude of a wave is the time taken for one wave. (X)

16. Sound velocity through liquids is more than that through gases. (✓)
17. The measuring unit of sound intensity is watt/m². (✓)
18. The sound intensity decreases, when the source touches a resonance box. (✗)
19. Fundamental tone's intensity is lower than that of harmonic tone. (✗)
20. The wavelength of visible light ranges between 380:700 nanometers. (✓)
21. In uniform reflection, the light rays are reflected directly in one direction. (✓)
22. The red light refracts near to the prism base. (✗)
23. The light ray refracts near to the normal, when it travels from air to glass. (✓)
24. As optical density of the medium increases, the speed of light through it increases. (✗)
25. The absolute refractive index of any transparent medium is always greater than one. (✓)
26. The fish is seen lower than its real position in the fish tank. (✗)
27. The corolla consists of bright colored scented leaves. (✓)
28. The carpel of flower consists of filament and anther. (✗)
29. Auto (self) pollination occurs in barley plant. (✓)
30. The anthers of air pollinated flowers are feathery like and sticky. (✗)
31. Vegetative reproduction is a type of sexual reproduction. (✗)
32. Man can't reproduce asexually. (✓)
33. Each ovary produces only one ripe ovum every 28 days in exchange with other ovary. (✓)
34. The ovum is mobile of a relatively large size. (✗)
35. The pregnancy in human beings takes about 9 months. (✓)



3] Correct the underlined words:

1. The transitional motion is the motion repeated through equal intervals of time. **Periodic**
2. The kinetic energy of the simple pendulum decreases by increasing its velocity. **increases**
3. Rotary bee and tuning fork produce oscillatory motion. **Simple pendulum**
4. Complete oscillation consists of 1/4 amplitude. **four**
5. Periodic time is the number of complete oscillation in one second. **frequency**
6. The highest point in transverse wave is called compression. **crest**
7. The trough of transverse wave is equivalent to the center of compression of the longitudinal wave. **rarefaction**
8. Speed of sound in water is slower than in air. **wood**

9. Light wave and sound wave are electromagnetic waves. **radio**
10. The distance between two successive crests or troughs is the wavelength of longitudinal wave. **transverse**
11. The measuring unit of wavelength (λ) is kilogram. **meter**
12. The distance between the first crest and third crest of a wave is 20 cm so the wavelength of this wave is 20 cm. **10 cm**
13. Piano and the drill produce musical tones. **violin**
14. Sound pitch is increased by decreasing density of medium. **length of air column or string**
15. The intensity of sound is measured in Hertz. **watt/m²**
16. The sound intensity decreases by increasing the density of the medium. **increases**
17. Sound travelling in air has more intensity than that in carbon dioxide. **less**
18. Infrasonic waves are used in sterilizing food. **ultrasonic**
19. The energy of the light photon depends on its wavelength. **frequency**
20. When the distance between the source of light and the surface decreases to its half value, the light intensity of the surface increases to double. **increases four times**
21. Flint glass is a transparent material. **Clear glass**
22. Light travels in curved lines. **straight**
23. Blue light color has the lowest energy and longest wavelength. **red**
24. In regular reflection: the angle of incidence is more than the angle of reflection. **equal to**
25. Light reflects when it travels from a transparent medium to another one of different optical density. **refracts**
26. When a beam of light falls inclined from air to water, the angle of incidence is equal to the angle of refraction. **more than**
27. The angle of incidence is greater than the angle of reflection. **equal to**
28. Bract is a group of flowers arranged on same axle. **inflorescence**
29. Palm trees have bisexual flowers. **unisexual**

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30. The pollen grains of insect pollinated flower are smooth. rough
31. The ovule is developed into fruit after fertilization. seed
32. The tuber may be a stem as in sweet potato. a root
33. Ovary, fallopian tube, uterus and testes are components of the female reproductive system. vagina
34. The male gamete contains quarter of the genetic material. half
35. Zygote carries half the number of chromosomes. Full or complete
36. The ovum consists of head, middle part and tail. sperm
37. Syphilis disease is caused by spherical bacteria. spiral



4] Write the scientific term:

1. The motion which is repeated regularly in equal time intervals. **Periodic motion**
2. The periodic motion made by a body around its point of rest. **Oscillatory motion**
3. The maximum displacement made by oscillating body away from its original point. **amplitude**
4. The motion of the oscillating body at the two sides of its rest point two successive times at the same direction. **complete oscillation**
5. The number of complete oscillations done in one second. **frequency**
6. The measuring unit of the periodic time. **second**
7. The measuring unit of frequency. **Hertz**
8. Time taken by the oscillating body to make one complete oscillation. **periodic time**
9. A disturbance propagates and transfers energy along the direction of propagation. **wave**
10. The wave in which medium particles vibrate in a direction perpendicular to the direction of wave propagation. **transverse wave**
11. Maximum displacement achieved by medium particles upward. **crest**
12. The area of the lowest density and pressure in the longitudinal wave. **rarefaction**
13. The wave which needs medium to travel through. **mechanical wave**

14. Physiotherapy tub used for treatment of sprains and cramps using hot water. **Jacuzzi**
15. It is an external factor that affects the ear causing the sense of hearing. **sound**
16. A tone of regular frequency that is produced from the reed pipe. **musical tone**
17. A property by which the ear can distinguish harsh and sharp voice. **sound pitch**
18. A property by which the ear can distinguish weak and strong voice. **sound intensity**
19. A property by which the ear can distinguish sounds of different sources even if they were equal in the intensity and pitch. **sound quality**
20. The tones accompanying the fundamental tone are higher in pitch and less in intensity.
harmonic tones
21. The sound waves have frequency less than 20 Hz. **infrasonic waves**
22. Sound waves that can be heard by bats but can't be heard by human. **ultrasonic waves**
23. One of the components of the electromagnetic spectrum of wavelength ranges between 380:700 nanometers. **visible light**
24. The distance covered by light in one second. **light velocity**
25. A physical quantity equal the multiplication of Plank's constant \times frequency. **photon energy**
26. The scientist who proved that the energy of the photon depends on its frequency.
Max Plank
27. A tool used in the analysis of light. **triangular glass prism**
28. Bodies allow the passage of most light rays through them. **transparent**
29. Bodies don't allow the passage of light through them. **opaque**
30. Bodies allow the passage of a part of light through them and absorb the rest part.
translucent (semi-transparent)
31. The amount of light falling perpendicularly on a unit area from a surface in one second.
light intensity
32. The light intensity is inversely proportional to square of the distance between the surface and the light source. **inverse square law**

33. The returning back of light rays to the same medium upon meeting a reflecting surface.
light reflection
34. The angle between the reflected light ray and the normal line at the point of incidence.
angle of reflection
35. The angle between the incident light ray and the normal line at the point of incidence on the reflecting surface. **angle of incidence**
36. The angle of incidence = the angle of reflection. **first law of reflection**
37. The incident ray, the reflected ray and the normal line at the point of incidence all lie in the same plane perpendicular to the reflecting surface. **second law of reflection**
38. Changing of light ray path when moving from a transparent medium to another transparent medium. **light refraction**
39. The ability of the medium to refract the light. **optical density**
40. The angle between the emergent light ray and the normal line at the point of emergence on the interface. **angle of emergence**
41. The ratio of the light velocity in air to its velocity in any other medium. **refractive index**
42. A phenomenon appears in the desert at noon in hot summer days where objects on the road sides seem to have reflected images on a wet area. **mirage**
43. Short stem where leaves developed and modified into reproductive organs. **flower**
44. A group of colored leaflets surrounding the flower. **corolla**
45. A floral whorl its function to protect the inner parts of the flower. **calyx**
46. The fusion of male nucleus (pollen grain) with the nucleus of an ovum. **fertilization**
47. The flower that contains gynoecium only. **female flower**
48. The male reproductive organ in the flower. **androecium**
49. The resulted cell of the fusion of the pollen grain nucleus with the egg nucleus. **zygote**
50. Transferring of pollen grains from the anthers of a flower to the stigma of another flower.
mixed pollination

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51. The flower that contains male and female organs together. **bisexual**
52. The reproduction of some plants by parts of the roots, stem or leaves. **vegetative reproduction**
53. The usage of a piece of a plant stem for reproduction. **cutting**
54. The male sex hormone in human that is responsible for the appearance of the male secondary sex characteristics. **testosterone**
55. A tube that helps to transfer the sperms from testes to urethra. **Vas deferens**
56. Two tubes of funnel shaped opening provided with finger like projections and lined with cilia. **fallopian tubes**
57. A pear shaped hollow organ in the female genital system. **uterus**
58. A muscular tube between the uterus and the external genital opening. **vagina**
59. The male gamete in human that carries half the number of chromosomes. **sperm**
60. A disease caused by spiral bacteria and transfer through illegal sexual contact. **syphilis**
61. The period of time between the occurrence of infection and the appearance of symptoms of the disease. **incubation period**



5] Cross out the odd word, then write the relation between the others:

1. Pendulum motion - spring motion - rotary bee motion - string motion. **Oscillatory motion**
2. Tuning fork - simple pendulum - spring - water. **Oscillatory motion**
3. MHz - Hz - m/sec - GHz. **Units of frequency**
4. Water wave - radio wave - light wave - infrared wave. **Electromagnetic wave**
5. Frequency - wavelength - displacement - wave velocity. **Law of wave propagation**
6. 1×10^6 Nanometer - 1×10^3 micrometer - 1×10^{-3} meter - 1×10^{-3} micrometer. **Millimeter**
7. Reed pipe - drill - piano - violin. **Musical tones**
8. Sound quality - sound intensity - sound pitch - sound speed. **Properties of sound**

9. Distance - amplitude - density of medium - **energy of photon**. *Factors affecting sound intensity*
10. **3 Hz** - 30 Hz - 300 Hz - 3000 Hz. *Sonic waves*
11. Red - **white** - yellow - orange. *Colors of spectrum*
12. Glass - water - air - **wood**. *Transparent materials*
13. Mirror - stainless steel - foil paper - **leaves**. *Regular reflection*
14. Calyx - **seed** - corolla - stamen. *Male flower*
15. Stigma - **stamen** - style - ovary. *Carpel*
16. **Olive** - peas - beans - watermelon. *Fruits with many seeds*
17. Rhizomes - corms - **grafting** - bulbs. *Natural vegetative reproduction*
18. Cutting - **pollination** - tissue culture - grafting. *Artificial vegetative reproduction*
19. **Fallopian tubes** - scrotum - vas deferens - testes. *Organs of male reproductive system*
20. Seminal vesicles - prostate gland - **pancreas gland** - Cowper's gland. *Male associated glands*
21. **Prostate** - fallopian tube - uterus - ovary. *Organs of female reproductive system*
22. Sperm - ovum - **zygote** - pollen grain. *Gametes*
23. Head - tail - mid-piece - **tube nucleus**. *Sperm*

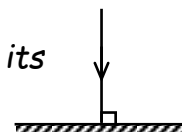


6] Complete:

1. There are two types of periodic motion which are **wave** and **oscillatory** motion.
2. The simple harmonic motion is an example of **oscillatory** motion.
3. The velocity of the oscillating body is maximum, when it passes through **rest point**
4. The maximum displacement made by the oscillating body is called **amplitude**
5. The amplitude measuring unit is **meter** while that of frequency is **Hertz**
6. A complete oscillation comprises **four** successive displacements, each one is called **amplitude**
7. When a body completes 600 complete cycles per minute, the frequency will be = **10 Hz**
8. The Hertz is the measuring unit of **frequency**

9. Frequency = one ÷ periodic time.
10. The longitudinal waves consists of compression and rarefaction
11. The transverse waves consists of crest and trough
12. The mechanical waves are classified into transverse and longitudinal
13. The crest in the transverse wave is corresponding to compression in longitudinal wave.
14. In the longitudinal waves, the particles of the medium oscillate along the direction of propagation.
15. In the transverse waves, the particles of the medium oscillate perpendicular to the direction of propagation.
16. The wavelength of the transverse wave is the distance between two successive crest or troughs.
17. The wavelength of longitudinal wave is the distance between centers of two successive compressions or rarefaction
18. Wave velocity = wavelength × frequency
19. Wave velocity = wavelength ÷ periodic time 😊 مین الشاطر اللي عرف
20. The sound originates from vibration of bodies.
21. The sound is considered from the mechanical waves, because it needs a medium.
22. Sound pitch is a property by which the ear can distinguish between soft and rough voices.
23. The Savart's wheel is used in determining frequency of unknown tone.
24. Sound intensity at a certain point is inversely proportional to the square of the distance between this point and the sound source, and is directly proportional with the square of amplitude.
25. The sound velocity is measured in watt/m² while the sound intensity is measured in decibel
26. From the factors affecting the sound intensity are distance and amplitude
27. The human ear could hear the sound that its frequency ranges between 20 and 20,000 Hz.
28. As the amplitude increases, the sound intensity increases

29. The frequency of sonic waves is between 20 Hz and 20,000 Hz.
30. The frequency of ultrasonic waves is more than 20,000 Hz while the frequency of infrasonic waves is less than 20 Hz.
31. Light intensity on a surface is inversely proportional with square distance between the source and this surface, this relation is called inverse square law
32. The light intensity is the amount of light falling perpendicular on the unit area in one second
33. The light velocity is the distance covered by light in one second
34. The transparent medium allows light to pass through it, while the opaque medium reflects the light back in the same medium.
35. The photon energy = Plank's constant x photon frequency
36. The light is a type of electromagnetic waves that propagate in vacuum with speed = 3×10^8 m/sec.
37. The red light has the lowest frequency and the longest wavelength
38. The violet light exits from the triangular prism towards the base because it has the greatest deviation
39. The light reflection is classified into two types which are regular and irregular reflection.
40. When you look at a coin in a glass of water, its apparent position appears to be higher than the real position.
41. When a light ray falls as in the figure on a mirror, it reflects on itself where its angle of incidence equals to zero
42. Due to the refraction of light, objects in water have an apparent position that is higher than their real position.
43. A flower arises from a floral bud, usually emerging from the axle of a leaf known as bract
44. Hermaphrodite flowers take the symbol ♀ while male flowers takes the symbol ♂
45. The floral leaves of calyx have green color and each one is called sepal



46. The male reproductive organ in the flower consists of stamens, while the female reproductive organ consists of carpels
47. The component of the flower are protected by leaflets called sepals
48. Fertilization is the process of fusing the male cell nucleus (pollen grain) with a female cell nucleus to form zygote
49. The bisexual flower contains 4 whorls but the male flower contains 3 whorls.
50. From the ways of artificial vegetative reproduction cutting and grafting
51. Sweet potato is considered as root, while the potatoes are stem
52. The testosterone hormone in male and estrogen hormone in female are responsible for the appearance of secondary sex characters in human.
53. Testes produce sperms and secrete testosterone hormone.
54. The pear-shaped hollow organ found in the pelvic cavity of a female's body is uterus and it protects the embryo (fetus) until birth.
55. The human zygote results from the fusion of sperm and ovum
56. The mid-piece of sperm contains mitochondria which are responsible for energy production needed for the sperms movement.
57. From the associated glands of the male reproductive system prostate and cowper's glands.
58. The male gamete in human is sperm while the male gamete in plant is pollen grain
59. Fertilization occurs in fallopian tube when the ovary produces a ripe ovum after 14 days of the beginning of menstrual cycle.



7] Give one example for:

1. Oscillating body. Simple pendulum
2. Mechanical wave. water wave
3. Electromagnetic wave. light wave
4. Transverse wave. light wave
5. Longitudinal wave. Sound wave

6. Physiotherapy tub used for treatment of nervous tension. **Jacuzzi**
7. Type of electromagnetic waves used in radar. **Radio waves**
8. A device produces musical tone. **Violin, Piano**
9. A device produces noise. **Drill, hammer**
10. Type of sound waves accompanies blowing of storms. **Infrasonic**
11. An animal can hear ultrasonic waves. **Bat, Dolphin**
12. Transparent material. **Air, Water, Glass**
13. Translucent material. **Flint glass, Tissue paper**
14. Opaque material. **Wood, Plant leaves, Wall . . . etc.**
15. Spectrum color. **Red, Green, Violet**
16. A tool can analyze the white light. **Triangular glass prism**
17. A smooth surface that regularly reflect light. **Mirror, Metal sheet, Foil paper**
18. A rough surface that causes irregular reflection of light. **Paper, Leather**
19. A material has higher optical density than air. **Water, Glass, Diamond**
20. A floral whorl. **Calyx, Corolla**
21. A bisexual flower. **Petunia, Wallflower**
22. A unisexual flower. **Maize (corn), Palm**
23. A fruit with many seeds. **Pea, Bean, Tomato**
24. A plant its flower has one ovule only in the ovary. **Olive, Peach**
25. A plant produces tubers. **Potato, Sweet potato**
26. A plant increased by cutting. **Grapes, Roses, Sugar cane**
27. A plant increased by grafting by attachment. **Mango**
28. A female reproductive organ. **Ovary, Fallopian tube, Uterus**
29. A male reproductive organ. **Testis, Vas deferens, Penis**
30. A female sex hormone. **Estrogen, Progesterone**
31. A female sign of puberty. **Softness of voice, Menstrual cycle . . . etc.**

32. A male sex hormone. **Testosterone**

33. A male sign of puberty. **Harshness of voice, Growth of bones, muscles**

34. A gamete cell. **Pollen grain, sperm, Ovum**

35. A disease transfers by sexual contact. **Gonorrhea, Syphilis, AIDS**

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8] What does the number indicate:

1. (340 m/sec). **Speed of sound in air**
2. (1500 m/sec). **Speed of sound in water**
3. (1850 m/sec). **Speed of sound in wood**
4. (3×10^8 m/sec). **Speed of light in space**
5. (20 : 20,000 Hz). **Frequency of sonic waves**
6. (380 : 700 nanometer). **Wavelength of visible light**
7. (23 chromosomes). **Number of chromosomes in human gametes**
8. (46 chromosomes). **Number of chromosomes in human zygote**
9. (9 month). **Pregnancy period**
10. (1 ~ 4 days). **Incubation period of Puerperal sepsis**
11. (2 ~ 3 weeks). **Incubation period of Syphilis**

⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦

9] Write the number which indicates each of the following:

1. The number of amplitudes in one complete oscillation. **4**
2. The number of Hz in one megahertz. **1×10^6 Hz**
3. The product of multiplying frequency and periodic time. **1**
4. The velocity by which light travels in space. **3×10^8 m/sec**
5. The velocity of sound through air. **340 m/sec**
6. The velocity of sound through water. **1500 m/sec**
7. The velocity of sound through wood. **1850 m/sec**
8. The frequency of infrasonic waves. **Less than 20 Hz**

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9. The frequency of sonic waves. **20 : 20,000 Hz**
10. The frequency of ultrasonic waves. **More than 20 KHz**
11. The wavelength range of visible light. **380 : 700 nm**
12. The number of spectrum colors. **7**
13. The angle of incidence if the angle of reflection = zero. **Zero**
14. The number of whorls in a typical flower. **4**
15. The number of whorls in a unisexual flower. **3**
16. The number of pollen chambers in one anther. **4**
17. The number of pollen grains produced by air pollinated plants. **millions**
18. The number of male nuclei in pollen grain during germination. **2**
19. The number of seeds in olive fruit. **1**
20. The number of types of associated glands in male reproductive system. **3**
21. The number of ovaries in female human. **2**
22. The number of days between each ovulation time. **28**
23. The number of days between each ovulation time from one ovary. **56**
24. The number of months of pregnancy. **9**
25. The age of starting menstrual cycle. **11 ~ 14 years old**
26. The age of menopause. **45 ~ 55 years old**
27. The number of chromosome in human sperm. **23**
28. The number of chromosome in human ovum. **23**
29. The number of sperms that fertilize the ovum. **1**
30. The number of chromosome in human fertilized ovum (zygote). **46**
31. The day at which the ovary produces the ripe ovum after starting of menstrual cycle. **14th**
32. The incubation period of puerperal sepsis. **1 ~ 4 days**
33. The incubation period of syphilis. **2 ~ 3 weeks**



10] Mention the difference between each pair as shown between brackets:

1. Transverse and longitudinal waves. [composition]
Transverse → Crests and troughs
Longitudinal → Compressions and rarefactions
2. Savart's wheel and triangular glass prism. [use]
Savart's wheel → used to determine the frequency of unknown tone
Triangular glass prism → used to analyze white light into seven spectrum colors
3. Musial tones and noise. [frequency]
Musical tone → has uniform frequency
Noise → has non-uniform frequency
4. Light and sound waves. [type of wave]
Light → electromagnetic transverse wave
Sound → mechanical longitudinal wave
5. Sound and noise intensity. [measuring unit]
Sound intensity → watt/m²
Noise intensity → Decibel
6. Infrasonic and ultrasonic waves. [frequency]
Infrasonic → less than 20 Hz
Ultrasonic → more than 20 KHz
7. Water and sound waves. [type of wave]
Water → transverse wave
Sound → longitudinal wave
8. Calyx and corolla. [color of leaves]
Calyx → green leaves
Corolla → colored leaves
9. Cutting and grafting. [examples]
Cutting → Roses, grapes, sugar cane
Grafting → Mango, apple, orange
10. Sperm and ovum. [size]
Sperm → very small size
Ovum → large sized

11. Syphilis and puerperal sepsis. [incubation period]

Syphilis → 2 : 3 weeks

Puerperal sepsis → 1 : 4 days



Second - Essay Questions:

1] What happens?

1. The decrease in the frequency of a sound wave. (concerning its pitch)
Sound pitch decreases and the sound becomes rough.
2. When the distance between a sound source and the ear increases to double. (concerning sound intensity)
Sound intensity decreases four times.
3. Light ray falls perpendicular on the interface between air and water.
Light passes without refraction.
4. The vibration of medium particles in a direction perpendicular to the direction of wave propagation.
Transverse wave is formed.
5. The wavelength is doubled at constant velocity concerning the frequency.
Frequency decreases to half.
6. Decreasing the amplitude of sound wave to its half concerning its intensity.
Sound intensity decreases to its quarter.
7. The vibration of the particles of a medium along the direction of wave propagation.
Longitudinal wave is produced.
8. Light ray falls perpendicular on a reflecting surface.
It reflects on itself.
9. A pollen grain falls on the stigma of a flower on the same plant.
Self-pollination occurs.
10. Ovary and ovule of the flower after fertilization.
Ovary develops into a fruit and ovule develops into a seed.



2] What is meant by:

1. The oscillating body makes 30 oscillations in one second.

Its frequency = 30 Hz.

2. The distance between 2 successive crests = 300 nanometer.

The wavelength = 300 nm.

3. The frequency of a sound wave = 2 MHz.

The sound wave is ultrasonic.

4. The absolute refractive index of diamond is 2.4

The ratio between the light velocity in air to that in diamond = 2.4

5. The wavelength of a light wave = 450 nanometers.

The light wave is from the visible light.

6. The maximum displacement made by the oscillating body = 3 cm.

Its amplitude = 3 cm.

7. The incubation period of a disease is 2 weeks.

Time between the infection and appearance of symptoms of this disease = 2 weeks.



3] Give reasons:

1. Oscillatory motion is considered as a periodic motion.

Because it is repeated in equal periods of time.

2. The water wave is considered a transverse wave.

Because water particles vibrate perpendicular to direction of wave propagation.

3. Sound can be heard from all surrounding directions.

Because it propagates as spheres whose center is the sound source.

4. The energy of red light photon is less than that of orange light photon.

Because the frequency of red light is less than that of orange light.

5. The ray falling perpendicular on the reflecting surface reflects on itself.

Because the angle of incidence = the angle of refraction = Zero.

6. The petals of corolla are colorful and scented.

To attract insect to complete sexual reproduction.

7. Palm flowers are unisexual.

Because they contain one reproductive organ only.

8. Auto pollination can't happen in sunflowers.

Because their stamens and carpals don't mature at the same time.

9. The ovum is relatively large in size.

To store food needed to feed the embryo.

10. The mid-piece of sperm contains mitochondria.

To provide it with energy needed for its movement.



4] Problems:

1. Calculate the frequency of a musical tone similar to the tone produced from a Savart's wheel rotating with a velocity of 960 revolution in 2 minutes, knowing that the number of gear teeth = 30

Given: d = 960 cycles t = 2 min = 2 x 60 = 120 sec n = 30 teeth

$$\text{As } F \times t = d \times n \quad \text{then } F = \frac{d \times n}{t} = \frac{960 \times 30}{120} = 240 \text{ Hz}$$

2. A simple pendulum makes 75 complete oscillations in 15 seconds, calculate its frequency and periodic time.

Given: No of C.O. = 75 Osc. t = 15 sec.

$$F = \frac{\text{No of C.O.}}{t} = \frac{75}{15} = 5 \text{ Hz}$$

$$P.t. = \frac{1}{F} = \frac{1}{5} = 0.2 \text{ sec}$$

3. Calculate the wavelength in meter for a visible light wave of frequency 6×10^{14} Hz and velocity 3×10^8 m/sec.

Given: F = 6×10^{14} Hz V = 3×10^8 m/sec

$$\text{as } V = F \times \lambda \quad \text{then } \lambda = \frac{V}{F} = \frac{3 \times 10^8}{6 \times 10^{14}} = 5 \times 10^{-7} \text{ meter}$$

4. From the opposite figure, find;

a) Wavelength = $40 \div 2 = 20 \text{ m}$

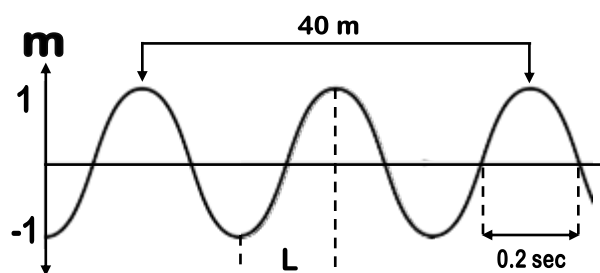
b) Periodic time = $0.2 \times 2 = 0.4 \text{ sec}$

c) Frequency = $\frac{1}{\text{P.t.}} = \frac{1}{0.4} = 2.5 \text{ Hz}$

d) Amplitude = 1 meter

e) Wave velocity = $F \times \lambda = 2.5 \times 20 = 50 \text{ m/sec}$

f) The distance (L) represents *half complete oscillation*



5. Calculate the wavelength of a sound wave propagating in sea water with velocity 1500 m/sec, knowing that the frequency of the wave is 10 kilohertz.

Given: $V = 1500 \text{ m/sec}$ $F = 10 \text{ KHz} = 10,000 \text{ Hz}$

$$\lambda = \frac{V}{F} = \frac{1500}{10000} = 0.15 \text{ meter}$$

6. Calculate the velocity of light in glass given that the velocity of light in air equals $3 \times 10^8 \text{ m/sec}$ and the absolute refractive index of glass is 1.5.

Given: $V \text{ of light in air} = 3 \times 10^8 \text{ m/sec}$ $A.R.I. = 1.5$

$$V \text{ of light in glass} = \frac{V \text{ of light in air}}{A.R.I.} = \frac{3 \times 10^8}{1.5} = 2 \times 10^8 \text{ m/sec}$$

7. Sound waves have frequency 400 Hz in air and its wave length is 85 cm, calculate the velocity of these waves.

Given: $F = 400 \text{ Hz}$ $\lambda = 85 \text{ cm} = \frac{85}{100} = 0.85 \text{ meter}$

$$V = F \times \lambda = 400 \times 0.85 = 340 \text{ m/sec}$$



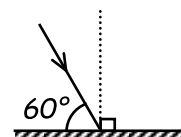
5] Mention one importance or use:

1. Radio wave. *used in radar*
2. Jacuzzi. *Treatment of sprains and cramp by hot water.*
3. Savart's wheel. *Determine the frequency of unknown tone.*
4. Resonance box in musical instruments. *Increases sound intensity.*
5. Ultrasonic waves in Medical field. *Break down kidney stones.*
6. Ultrasonic waves in Industrial field. *Sterilization of food, water and milk.*
7. Triangular glass prism. *Analyze white light into 7 spectrum colors.*
8. Anther. *Produce pollen grains.*
9. Corolla. *Attract insects to complete fertilization.*
10. Calyx. *Protect inner parts of the flower.*
11. Androecium. *Produce pollen grains.*
12. Feathery stigma. *Collect pollen grains from air.*
13. Testes. *Produce sperms and male hormone.*
14. Vas deferens. *Carry sperms from testes to urethra.*
15. Human ovaries. *Produce ova and female hormones.*
16. Uterus. *Protect and feed the fetus until birth.*
17. Progesterone. *Continuity of the pregnancy.*
18. Tail of sperm. *Movement of sperm.*

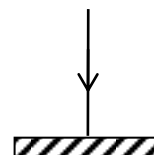
⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘ ✦ ⌘

6] Study the figure, then answer:

1. The angle of reflection of the light ray in the figure = **30°**



2. The angle of reflection of the light ray in the figure = **0**



3. Write the sex of each flower.



Female flower

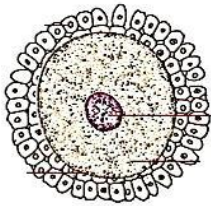


Bisexual flower



Male flower

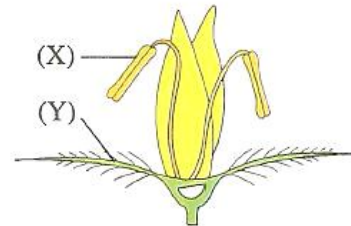
4. Write the name of the figure.



Ovum



Sperm



Flower pollinated by wind

Good Luck

حمل الآن

مجانا وحصريا

امتحانات رقم (1)

الترم الثاني



Model (1)

24
Marks

1 (A) Correct the underlined words:

- 1 The nucleus of a mature egg in humans contains double the genetic material. (.....)
- 2 The sound intensity is a property that allows the ear to distinguish between sharp and harsh sounds. (.....)

(B) First: Give reasons for:

- 1 We see lightning before hearing thunder, although they occur at the same time.

.....

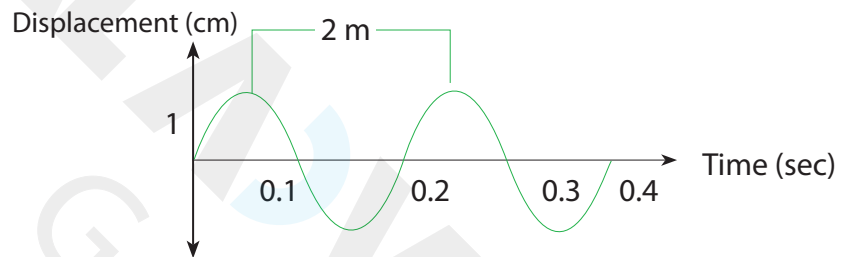
.....

- 2 The pollination in barely is auto-pollination.

.....

Second: Look at the opposite figure, then calculate:

- 1 Amplitude =
- 2 Wavelength =
- 3 Periodic Time =
- 4 Frequency =



2 (A) Complete the following sentences:

- 1 A simple pendulum oscillates 30 complete oscillations in 6 seconds, its frequency equals hertz and its periodic time is seconds.
- 2 After the fertilization process in a plant is completed, the ovule turns into a, while the ovary turns into a

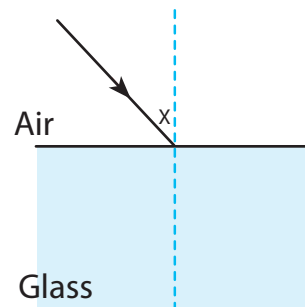
(B) First: Look at the following figures, then answer:

Fig. (1)



The flower's sex is

Fig. (2)



Complete the figure.

Second: Problem:

- Calculate the absolute refractive index of diamond, knowing that the velocity of light through it is 1.25×10^8 m/s.

.....

3 (A) Write the scientific term:

- 1 The reflection of light rays when they meet a smooth and glistening reflecting surface, where the incident rays are reflected in one direction. (.....)
- 2 The intensity of light is inversely proportional to the square of the distance between the surface and the source of light. (.....)

(B) What happens when ...?

- 1 A part of an orange plant is tied to a branch of a naring plant.

.....

.....

- 2 The two fallopian tubes were cut.

.....

- 3 The thickness of a transparent medium increases. (In terms of passing light).

.....

- 4 A light ray falls perpendicular to the interface between two different media.

.....

4 (A) Choose the correct answer:

- 1 The amplitude of a wave is of a complete wave. (double – fifth – half – quarter)
- 2 The measuring unit of noise intensity is (Hertz – meter – decibel – nanometer)

(B) First: What is meant by ...?

- 1 The wavelength of a sound wave = 2 m.

.....

.....

- 2 Vegetative reproduction.

.....

.....

Second: Compare between ...:

P.O.C	Testes	Ovary
Location
Function

Model (2)

24
Marks

1 (A) Choose the correct answer:

1 The speed of sound is the highest in

- a) vacuum b) solids c) liquids d) gases

2 The hormone is essential for the continuation of pregnancy.

- a) estrogen b) testosterone c) progesterone d) thyroxine

(B) First: What happens when ...?

1 A vibrating body passes through its equilibrium position (in terms of its speed).

.....

2 A recent labored mother is subjected to cold air currents.

.....

Second: Savart's wheel rotates with a rate of 30 cycles per minute. A sound of frequency 100 Hz is produced when an elastic plate touches the teeth of one gear. Calculate the number of the teeth of the gear.

.....

.....

2 (A) Put (✓) or (X) in front of each sentence:

1 In a longitudinal wave, the particles of the medium vibrate perpendicularly to the direction of wave propagation. ()

2 The energy of a photon is inversely proportional to its frequency. ()

(B) First: Look at the following figures, then answer:

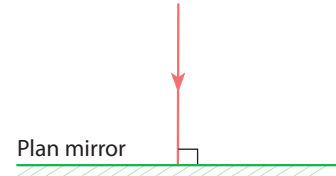
Fig. (1)



The sound of the lion is harsh. Why?

.....

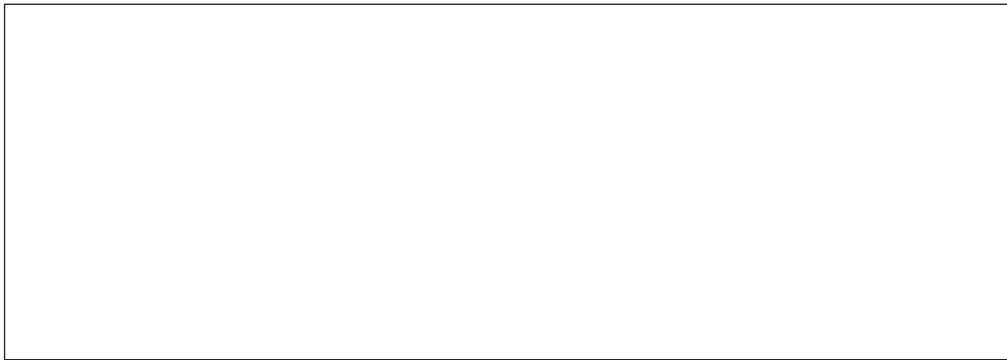
Fig. (2)



What is the value of the angle of reflection?

.....

Second: Illustrate by a labelled diagram the stages of a pollen grain germination.



3 (A) Write the number that indicates each of the following:

- 1 The product of multiplying the frequency by the periodic time. ()
- 2 Number of floral whorls where a typical flower has. ()

(B) Give reasons for:

- 1 The energy of red photon is less than the that of orange photon.
.....
- 2 The inner wall of the fallopian tubes is lined with cilia.
.....
- 3 The strings of a musical lute are fixed on a hollow wooden box.
.....
- 4 We can't hear the sound of solar explosions, but we can see the light coming out of them.
.....
.....
.....

4 (A) Write the scientific term:

- 1 The area in longitudinal waves where the medium particles have the lowest density and pressure. (.....)
- 2 A hollow muscular organ that protects the fetus until birth. (.....)

(B) First: What is meant by ...?

- 1 Tissue culture.
.....
.....
- 2 Light refraction.
.....
.....

Second: Calculate the time taken by a simple pendulum to reach the maximum displacement away from its rest position knowing that its frequency is 5 Hertz.

.....
.....
.....

Model (3)

24
Marks

1 (A) Choose the correct answer:

- 1 If the distance between the center of the third compression and the center of the fifth compression in a longitudinal wave is 20 cm, then the wavelength of this wave is cm.
a) 5 b) 10 c) 20 d) 40
- 2 The human egg cell is similar to the sperm cell in that it
a) is static b) is mobile
c) is large in size d) contains 23 chromosomes

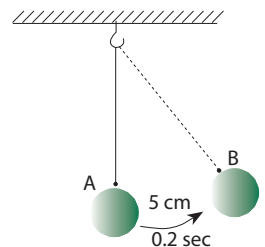
(B) First: Give a reason for:

- 1 The human ear can distinguish between sounds of different sources even if they are equal in intensity and pitch.
.....
.....

- 2 Self-pollination does not occur in sunflower flowers, even though they are bisexual.
.....

Second: Look at the opposite figure, then answer:

- 1 Amplitude =
- 2 Periodic time =



2 (A) Complete the following sentences:

- 1 sounds have a high frequency, while sounds have a low frequency.
- 2 In humans, the right ovary produces only one ripe ovum every days.

(B) First: What is meant by ...?

- 1 The angle of refraction of a light ray is 40° .
.....
.....

- 2 The frequency of an oscillating body is 50 Hertz.
.....
.....

Second: Compare between ...:

1

P.O.C	Transparent medium	Opaque medium
Transmission of light
Examples

2

P.O.C	Androecium	Gynoecium
Its leaves are known as
Function

3 (A) Cross out the words, then write down the relation between the rest of words:

1 20 Kilohertz – 15 Hertz – 20 Hertz – 10 Kilohertz. (.....)

2 Head – Tail – Midpiece – Scrotum. (.....)

(B) First: Mention one function of or a use for each of the following:

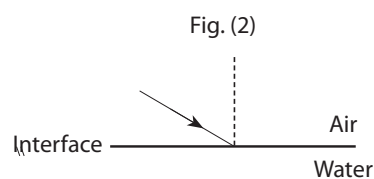
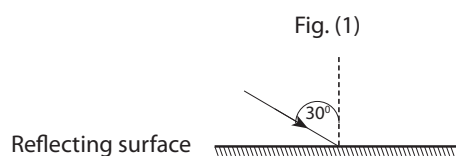
1 Ultrasonic waves in the medical field.

.....

2 Tubers of potatoes.

.....

Second: Complete the following figures after redrawing them in your answer sheet:



4 (A) Match from column (A) what suits in column (B):

(A)	(B)
1 Irregular reflection	a. It is the measuring unit of noise intensity.
2 Decibel	b. It is the simplest oscillatory motion.
3 Corms	c. happens on rough reflecting surface.
4 Simple harmonic motion	d. Natural vegetative reproduction way.
	e. Measuring unit of frequency.

1. (.....)

2.(.....)

3. (.....)

4. (.....)

(B) First: Define ...:

1 Transverse wave.

.....

.....

2 Sound quality.

.....

.....

Second: Calculate the wavelength of a sound wave that propagates in sea water with velocity 1500 m/s, knowing that its frequency is 10 kilohertz.

.....

.....

Model (4)

24
Marks

1 (A) Write the scientific term:

- 1 Short stem where leaves are developed and modified into genital organs. (.....)
- 2 The highest point of the particles of the medium in the transverse waves. (.....)

(B) First: Compare between ...:

1

P.O.C	Estrogen hormone	Testosterone hormone
Produced by

2

P.O.C	Sonic waves	Infrasonic waves
Frequency

Second: A simple pendulum makes 3600 complete oscillations in 2 minutes. If each complete oscillation covers a distance of 36 cm, calculate:

- 1 Amplitude =
- 2 Frequency =

2 (A) Complete the following sentences:

- 1 The corolla follows the of the flower and its brightly colored attract insects to the flower.
- 2 Sound intensity by decreasing the density of the medium.

(B) First: Give a reason for:

- 1 The absolute refractive index of any transparent medium is always greater than one.

.....
.....

- 2 Peach fruit contains only one seed, while pea fruit contains more than one seed.

.....
.....

Second: What is meant by ...?

- 1 The wave velocity = 30 m/s.

.....

- 2 The pregnancy period.

.....

.....

3 (A) Mention one example for...:

- 1 A unisex flower. (.....)

- 2 Harsh low-pitched sound. (.....)

(B) First: What happens when ...?

- 1 A pendulum reaches its maximum displacement away from its rest position. (In terms of velocity)

.....

- 2 The mucus membrane lining the uterus has no blood capillaries.

.....

.....

Second: Calculate the frequency of a musical tone similar to the frequency of a produced by using Savart's wheel rotated with a velocity of 360 cycles in one minute, given that the number of teeth of the gear is 10 teeth.

.....

.....

4 (A) Choose the correct answer:

- 1 The intensity of a gunshot sound at the top of the mountain is its intensity at the foot of a mountain.

a) greater than b) less than c) equal to d) double

- 2 Flowers with large colored and scented petals are mainly pollinated by

a) water b) wind c) insects d) humans

(B) First: Mention one function or a use for each of the following:

- 1 Jacuzzi.

.....

.....

- 2 Triangular glass prism.

Second: Answer the following questions:

- 1 What affects the light intensity?

- 2 Look at the following figures, then answer:

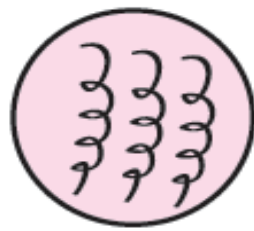


Fig. (1)

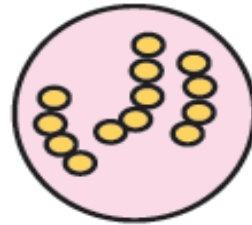


Fig. (2)

- Fig (1) represents bacteria, and causes disease.
- Fig (2) represents bacteria, and causes disease.

Model (5)

24
Marks

1 (A) Complete the following sentences:

- 1 If the vertical distance between the crest and trough of a wave is 10 cm, then the amplitude of this wave is cm.
- 2 The male reproductive organ in the flower is the, while the female reproductive organ is the

(B) First: What happens when ...?

- 1 The distance between a listener's ear and the sound source is doubled.
.....
- 2 A light ray falls perpendicularly on the interface between two transparent media with different optical densities.
.....

Second: Calculate the time in minutes taken by Savart's wheel to make 30 cycles, if the frequency of the produced sound with a gear of 60 teeth is 300 Hz.

.....

.....

2 (A) Put (✓) or (X) in front of each sentence:

- 1 Ultrasonic waves are used to discover landmines. ()
- 2 The motion of the rotary bee is considered as an oscillatory motion. ()

(B) Give reasons for:

- 1 Sound can be heard from all the surrounding directions.
.....
.....
- 2 The frequency of an oscillating body decreases by increasing its periodic time.
.....
- 3 When a light ray falls perpendicular on a reflecting surface, it reflects on itself.
.....
- 4 The stigma of some flowers is feathery like and sticky.
.....

3 (A) Choose the correct answer:

1 are mechanical waves.

a) Radio waves only

b) Light waves only

c) Infrared waves and sound waves

d) Water waves and sound waves

2 The sound whose frequency is 200 Hz the sound whose frequency is 100 Hz.

a) has higher pitch than

b) is harsher than

c) is quieter than

d) has lower pitch than

(B) First: Compare between ...:

1

P.O.C	Red light	Violet light
Deviation
Frequency of photon

2

P.O.C	Hermaphrodite flower	Male flower
Flower sex
Reproductive organ

Second: From the following figure, calculate:

1 Wavelength.

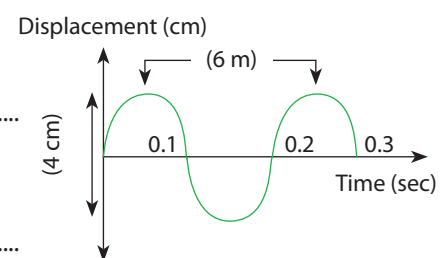
.....

2 Frequency.

.....

3 Velocity of propagation.

.....



4 (A) Cross out the words, then write down the relation between the rest of words:

1 Energy of a photon – Wavelength – Planck's constant – Photon frequency.

(.....)

2 Carpel – Filament – Pollen grains – Anther.

(.....)

(B) First: Look at the following figures, then answer:

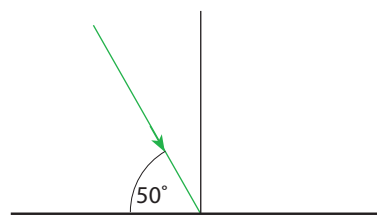
Fig. (1)



The flower's sex is

.....

Fig. (2)



The angle of incidence

equals

Second: What is meant by ...?

1 Female menopause.

.....

2 The absolute refractive index of water is 1.33.

.....

Model (1)

24
Marks

1 (A) Correct the underlined words:

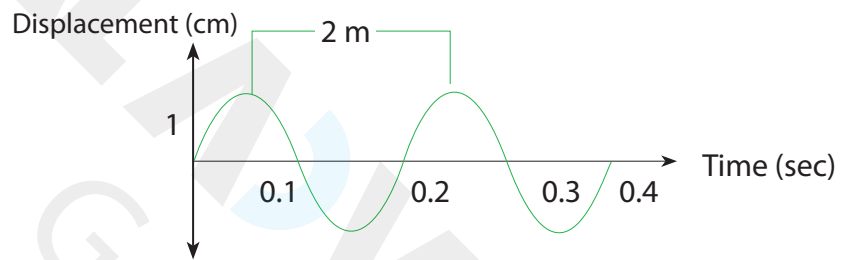
- 1 The nucleus of a mature egg in humans contains double the genetic material. (half)
- 2 The sound intensity is a property that allows the ear to distinguish between sharp and harsh sounds. (sound pitch)

(B) First: Give reasons for:

- 1 We see lightning before hearing thunder, although they occur at the same time.
Because the speed of light waves (electromagnetic waves) is faster than the speed of sound waves (mechanical waves).
- 2 The pollination in barely is auto-pollination.
- Because its flowers never bloom until the completion of fertilization process.

Second: Look at the opposite figure, then calculate:

- 1 Amplitude = 1 m
- 2 Wavelength = 2 m
- 3 Periodic Time = 0.2 sec
- 4 Frequency = $\frac{\text{Number of complete oscillations}}{\text{Time (sec)}} = \frac{2}{0.4} = 5 \text{ Hz}$



2 (A) Complete the following sentences:

- 1 A simple pendulum oscillates 30 complete oscillations in 6 seconds, its frequency equals 5 hertz and its periodic time is 0.2 seconds.
- 2 After the fertilization process in a plant is completed, the ovule turns into a seed, while the ovary turns into a fruit.

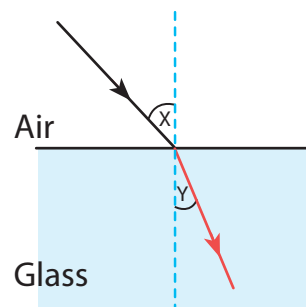
(B) First: Look at the following figures, then answer:

Fig. (1)



The flower's sex is male.

Fig. (2)



Complete the figure.

Second: Problem:

- Calculate the absolute refractive index of diamond, knowing that the velocity of light through it is 1.25×10^8 m/s.

$$\text{- Absolute refractive index}_{(\text{diamond})} = \frac{\text{Velocity of light through air}}{\text{Velocity of light through diamond}} = \frac{3 \times 10^8}{1.25 \times 10^8} = 2.4$$

3 (A) Write the scientific term:

- 1 The reflection of light rays when they meet a smooth and glistening reflecting surface, where the incident rays are reflected in one direction. (**Regular light reflection**)
- 2 The intensity of light is inversely proportional to the square of the distance between the surface and the source of light. (**Inverse square law of light**)

(B) What happens when ...?

- 1 A part of an orange plant is tied to a branch of a naring plant.
- **The orange plant (scion) feeds on the juice of the naring plant (stock) and grows forming orange fruits (reproduction by grafting).**
- 2 The two fallopian tubes were cut.
- **The ripped ovum can't be received and directed towards the uterus.**
- 3 The thickness of a transparent medium increases. (In terms of passing light).
- **The quantity of light that passes through it decreases.**
- 4 A light ray falls perpendicular to the interface between two different media.
- **The light ray passes without refraction.**

4 (A) Choose the correct answer:

- 1 The amplitude of a wave is of a complete wave. (double – fifth – half – **quarter**)
- 2 The measuring unit of noise intensity is (Hertz – meter – **decibel** – nanometer)

(B) First: What is meant by ...?

- 1 The wavelength of a sound wave = 2 m.
- **This means that the distance between the centers of two successive compressions or two successive rarefactions is 2 meters.**
- 2 Vegetative reproduction.
- **It is the process of producing new individuals from different parts of the plant, such as roots, stems, or leaves without the flower having a role in this process.**

Second: Compare between ...:

P.O.C	Testes	Ovary
Location	Outside the male's body in scrotal sac hanged between male's thighs.	Inside the female's body in the lower part of the abdominal cavity at the back.
Function	Production of sperms and testosterone hormone.	Production of ova and female sex hormones (estrogen and progesterone).

Model (2)

24
Marks

1 (A) Choose the correct answer:

1 The speed of sound is the highest in

- a) vacuum **b) solids** c) liquids d) gases

2 The hormone is essential for the continuation of pregnancy.

- a) estrogen b) testosterone **c) progesterone** d) thyroxine

(B) First: What happens when ...?

1 A vibrating body passes through its equilibrium position (in terms of its speed).

- **Its speed increases.**

2 A recent labored mother is subjected to cold air currents.

- **She will be affected by puerperal sepsis disease.**

Second: Savart's wheel rotates with a rate of 30 cycles per minute. A sound of frequency 100 Hz is produced when an elastic plate touches the teeth of one gear.
Calculate the number of the teeth of the gear.

Time (t) = 1 × 60 = 60 seconds

$$\text{No. of gear teeth (n)} = \frac{\text{Time in seconds (t)} \times \text{Frequency (F)}}{\text{No. of cycles (d)}} = \frac{60 \times 100}{30} = 200 \text{ Teeth}$$

2 (A) Put (✓) or (X) in front of each sentence:

1 In a longitudinal wave, the particles of the medium vibrate perpendicularly to the direction of wave propagation. (X)

2 The energy of a photon is inversely proportional to its frequency. (X)

(B) First: Look at the following figures, then answer:

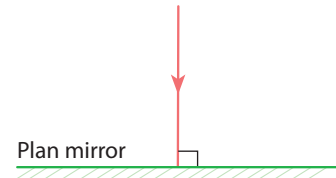
Fig. (1)



The sound of the lion is harsh. Why?

Because it has low frequency and low pitch.

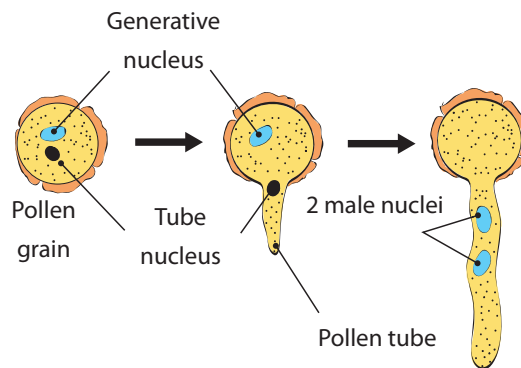
Fig. (2)



What is the value of the angle of reflection?

Zero.

Second: Illustrate by a labelled diagram the stages of a pollen grain germination.



3 (A) Write the number that indicates each of the following:

- 1 The product of multiplying the frequency by the periodic time. (1)
- 2 Number of floral whorls where a typical flower has. (4)

(B) Give reasons for:

- 1 The energy of red photon is less than the that of orange photon.
- Because the frequency of the red photon is less than that of the orange photon.
- 2 The inner wall of the fallopian tubes is lined with cilia.
- To direct the ripe ovum towards the uterus.
- 3 The strings of a musical lute are fixed on a hollow wooden box.
- To increase the vibrating surface area which leads to an increase in the sound intensity.
- 4 We can't hear the sound of solar explosions, but we can see the light coming out of them.
- Because the sound is a mechanical wave, area which can't propagate through vacuum between the Sun and Earth, while the light is an electromagnetic wave, which can propagate through vacuum.

4 (A) Write the scientific term:

- 1 The area in longitudinal waves where the medium particles have the lowest density and pressure. **(Rarefaction)**
- 2 A hollow muscular organ that protects the fetus until birth. **(Uterus)**

(B) First: What is meant by ...?

- 1 Tissue culture.
- It is the process of multiplying a small part of a plant (such as, carrot) to get many identical parts.
- 2 Light refraction.
- It is the change of light path when it travels from a transparent medium to another transparent medium of different density.

Second: Calculate the time taken by a simple pendulum to reach the maximum displacement away from its rest position knowing that its frequency is 5 Hertz.

$$\text{Periodic time (T)} = \frac{1}{\text{Frequency (F)}} = \frac{1}{5} = 0.2 \text{ sec}$$

$$\text{Time of amplitude} = \frac{\text{Periodic time (T)}}{4} = \frac{0.2}{4} = 0.05 \text{ sec}$$

Model (3)

24
Marks

1 (A) Choose the correct answer:

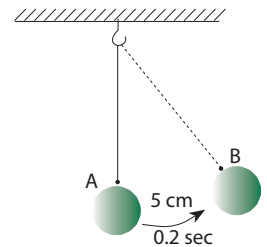
- 1 If the distance between the center of the third compression and the center of the fifth compression in a longitudinal wave is 20 cm, then the wavelength of this wave is cm.
a) 5 **b) 10** c) 20 d) 40
- 2 The human egg cell is similar to the sperm cell in that it
a) is static b) is mobile
c) is large in size **d) contains 23 chromosomes**

(B) First: Give a reason for:

- 1 The human ear can distinguish between sounds of different sources even if they are equal in intensity and pitch.
- Due to the difference in the harmonic tones that associate the fundamental tone produced from the source of sound.
- 2 Self-pollination does not occur in sunflower flowers, even though they are bisexual.
- Because the anthers and stigmas do not mature at the same time.

Second: Look at the opposite figure, then answer:

- 1 Amplitude = **5 cm**
- 2 Periodic time = **$4 \times 0.2 = 0.8 \text{ sec}$**



2 (A) Complete the following sentences:

- 1 **Sharp** sounds have a high frequency, while **harsh** sounds have a low frequency.
- 2 In humans, the right ovary produces only one ripe ovum every **56** days.

(B) First: What is meant by ...?

- 1 The angle of refraction of a light ray is 40° .
- This means that the angle between the refracted light ray and the normal at the point of incidence on the interface is 40° .
- 2 The frequency of an oscillating body is 50 Hertz.
- This means that number of complete oscillations produced by the oscillating body in one second is 50 oscillations.

Second: Compare between ...:

1

P.O.C	Transparent medium	Opaque medium
Transmission of light	It permits most light to pass through.	It doesn't permit any light to pass through.
Examples	Air	Wood

2

P.O.C	Androecium	Gynoecium
Its leaves are known as	Stamens	Carpels
Function	It produces pollen grains.	It produces ovules.

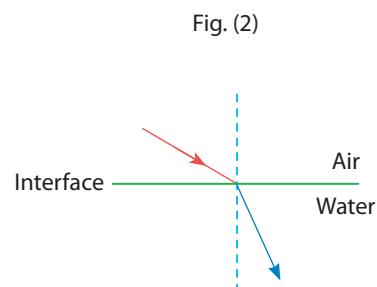
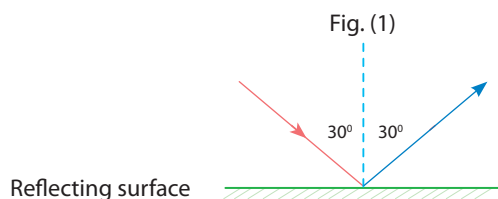
3 (A) Cross out the words, then write down the relation between the rest of words:

- 1 20 Kilohertz – 15 Hertz – 20 Hertz – 10 Kilohertz. (15 Hertz, the rest are sonic waves)
- 2 Head – Tail – Midpiece – Scrotum. (Scrotum, the rest are the structure of a sperm)

(B) First: Mention one function of or a use for each of the following:

- 1 Ultrasonic waves in the medical field.
- It is used in breaking down kidney and ureter stones without any surgical interventions.
- 2 Tubers of potatoes.
- They contain buds that are used for vegetative reproduction.

Second: Complete the following figures after redrawing them in your answer sheet:



4 (A) Match from column (A) what suits in column (B):

(A)	(B)
1 Irregular reflection	a. It is the measuring unit of noise intensity.
2 Decibel	b. It is the simplest oscillatory motion.
3 Corms	c. happens on rough reflecting surface.
4 Simple harmonic motion	d. Natural vegetative reproduction way.
	e. Measuring unit of frequency.

1. (c)

2. (a)

3. (d)

4. (b)

(B) First: Define ...:

1 Transverse wave.

- It is a disturbance in which the particles of the medium vibrate perpendicular to the direction of wave propagation.

2 Sound quality.

- It is the property by which the human ear can distinguish between different sounds according to the nature of the source even if they are equal in intensity and pitch.

Second: Calculate the wavelength of a sound wave that propagates in sea water with velocity 1500 m/s, knowing that its frequency is 10 kilohertz.

- Frequency = $10 \times 10^3 = 10^4 \text{ Hz}$

$$\text{Wavelength } (\lambda) = \frac{\text{Wave velocity (V)}}{\text{Frequency (F)}} = \frac{1500}{10^4} = 0.15 \text{ m}$$

Model (4)

24
Marks

1 (A) Write the scientific term:

- 1 Short stem where leaves are developed and modified into genital organs. (**Flower**)
- 2 The highest point of the particles of the medium in the transverse waves. (**Crest**)

(B) First: Compare between ...:

1

P.O.C	Estrogen hormone	Testosterone hormone
Produced by	Ovaries	Two testes

2

P.O.C	Sonic waves	Infrasonic waves
Frequency	Ranges from 20 Hz to 20 KHz.	Frequencies are lower than 20 Hz

Second: A simple pendulum makes 3600 complete oscillations in 2 minutes. If each complete oscillation covers a distance of 36 cm, calculate:

- 1 Amplitude = $\frac{36}{4} = 9 \text{ cm}$
- 2 Frequency = $\frac{\text{Number of complete oscillations}}{\text{Time (sec)}} = \frac{3600}{120} = 30 \text{ Hz}$

2 (A) Complete the following sentences:

- 1 The corolla follows the **calyx** of the flower and its brightly colored **petals** attract insects to the flower.
- 2 Sound intensity **decreases** by decreasing the density of the medium.

(B) First: Give a reason for:

- 1 The absolute refractive index of any transparent medium is always greater than one.
- **Because the velocity of light through air is always greater than that through any transparent medium.**
- 2 Peach fruit contains only one seed, while pea fruit contains more than one seed.
- **Because the ovary of peach contains only one ovule, while the ovary of the pea contains many ovules.**

Second: What is meant by ...?

- 1 The wave velocity = 30 m/s.

- This means that the wave covers a distance of 30 meters in one second.

- 2 The pregnancy period.

- It is the period between the fertilization process and delivery which extends about 9 months in humans.

3 (A) Mention one example for...:

- 1 A unisex flower.

(Palm flowers)

- 2 Harsh low-pitched sound.

(Lion)

(B) First: What happens when ...?

- 1 A pendulum reaches its maximum displacement away from its rest position. (In terms of velocity)

- The velocity of the pendulum equals zero.

- 2 The mucus membrane lining the uterus has no blood capillaries.

- The placenta will not be formed, then the nourishment of the fetus will not happen, so the fetus dies.

Second: Calculate the frequency of a musical tone similar to the frequency of a produced by using Savart's wheel rotated with a velocity of 360 cycles in one minute, given that the number of teeth of the gear is 10 teeth.

- Time (t) = 1 × 60 = 60 seconds

$$\text{Frequency (F)} = \frac{\text{No. of cycles (d)} \times \text{No. of gear teeth (n)}}{\text{Time in seconds (t)}} = \frac{360 \times 10}{60} = 60 \text{ Hz}$$

4 (A) Choose the correct answer:

- 1 The intensity of a gunshot sound at the top of the mountain is its intensity at the foot of a mountain.

a) greater than **b) less than** c) equal to d) double

- 2 Flowers with large colored and scented petals are mainly pollinated by

a) water b) wind **c) insects** d) humans

(B) First: Mention one function or a use for each of the following:

- 1 Jacuzzi.

- It is used to treat sprains and cramps by using hot water, while treating nervous tension by using cold water.

2 Triangular glass prism.

- It analyzes the white light into seven spectrum colors.

Second: Answer the following questions:

1 What affects the light intensity?

- The distance between the light source and the surface.

2 Look at the following figures, then answer:

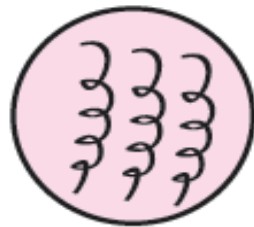


Fig. (1)

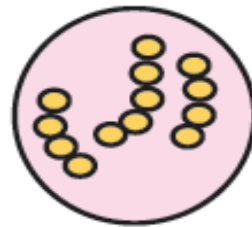


Fig. (2)

- Fig (1) represents **spiral-shaped** bacteria, and causes **syphilis** disease.

- Fig (2) represents **spherical- shaped** bacteria, and causes **puerperal sepsis** disease.

Model (5)

24
Marks

1 (A) Complete the following sentences:

- 1 If the vertical distance between the crest and trough of a wave is 10 cm, then the amplitude of this wave is **5** cm.
- 2 The male reproductive organ in the flower is the **stamen**, while the female reproductive organ is the **carpel**.

(B) First: What happens when ...?

- 1 The distance between a listener's ear and the sound source is doubled.
- **The sound intensity decreases to quarter.**
- 2 A light ray falls perpendicularly on the interface between two transparent media with different optical densities.
- **It passes through without any refraction.**

Second: Calculate the time in minutes taken by Savart's wheel to make 30 cycles, if the frequency of the produced sound with a gear of 60 teeth is 300 Hz.

$$\text{Time in minutes (t)} = \frac{\text{No. of cycles (d)} \times \text{No. of gear teeth (n)}}{\text{Frequency (F)}} = \frac{60 \times 30}{300} = 6 \text{ sec}$$

$$\text{Time in minutes (t)} = \frac{6}{60} = 0.1 \text{ min.}$$

2 (A) Put (✓) or (X) in front of each sentence:

- 1 Ultrasonic waves are used to discover landmines. (✓)
- 2 The motion of the rotary bee is considered as an oscillatory motion. (X)

(B) Give reasons for:

- 1 Sound can be heard from all the surrounding directions.
- **Because sound travels through air as spheres of compressions and rarefactions whose center is the sound source.**
- 2 The frequency of an oscillating body decreases by increasing its periodic time.
- **Because the frequency is inversely proportional with the periodic time.**
- 3 When a light ray falls perpendicular on a reflecting surface, it reflects on itself.
- **Because the angle of incidence and the angle of reflection equals zero.**
- 4 The stigma of some flowers is feathery like and sticky.
- **To catch pollen grains from air.**

3 (A) Choose the correct answer:

1 are mechanical waves.

a) Radio waves only

b) Light waves only

c) Infrared waves and sound waves

d) Water waves and sound waves

2 The sound whose frequency is 200 Hz the sound whose frequency is 100 Hz.

a) has higher pitch than

b) is harsher than

c) is quieter than

d) has lower pitch than

(B) First: Compare between ...:

1

P.O.C	Red light	Violet light
Deviation	Lowest deviation	Highest deviation
Frequency of photon	Lowest frequency	Highest frequency

2

P.O.C	Hermaphrodite flower	Male flower
Flower sex	Bisexual	Unisexual
Reproductive organ	Stamen and carpel	Stamen only

Second: From the following figure, calculate:

1 Wavelength.

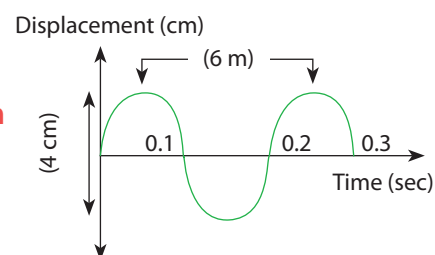
$$\text{- Wavelength} = \frac{\text{Distance covered by waves}}{\text{Number of waves}} = \frac{6}{1.5} = 4 \text{ m}$$

2 Frequency.

$$\text{- Frequency} = \frac{\text{Number of waves}}{\text{Time in seconds}} = \frac{1.5}{0.3} = 5 \text{ Hz}$$

3 Velocity of propagation.

$$\text{- Velocity of propagation} = \text{Frequency} \times \text{Wavelength} = 5 \times 6 = 30 \text{ m/s}$$



4 (A) Cross out the words, then write down the relation between the rest of words:

1 Energy of a photon – Wavelength – Planck's constant – Photon frequency.

(Wavelength, the rest are the energy of a photon)

2 Carpel – Filament – Pollen grains – Anther. **(Carpel, the rest are the structure of stamens)**

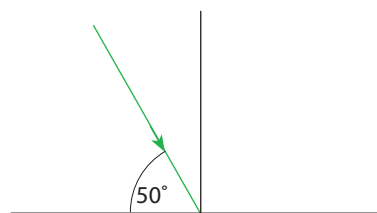
(B) First: Look at the following figures, then answer:

Fig. (1)



The flower's sex is
bisexual.

Fig. (2)



The angle of incidence
equals **40°**.

Second: What is meant by ...?

1 Female menopause.

- It is the age at which the two ovaries completely stop releasing ova.

2 The absolute refractive index of water is 1.33.

- This means that the ratio between the velocity of light through air to that through water is 1.33.

حمل الآن

مجانا وحصريا

امتحانات رقم (2)

الترم الثاني



Model exam (1)

■ Question 1

A) Choose the correct answer

1-All the following are oscillatory motion except

a-simple pendulum b-tunning fork c-rotary bee

2-the speed of the pendulum ballthe further it moves away
from its rest point

a-increases b-doubles c-decreases d-not affected

B) Define

1- Periodic time

2- Sound

3- Flower

4- Oscillatory motion

■ Question 2

A) Put √ or × :

1. Oscillatory motion is a periodic motion

2. Periodic time is directly proportional with frequency

B) Compare between:

1. Longitudinal wave and transverse wave according to direction of propagation.

2. mechanical wave and electromagnetic wave (example only)

3. sound and light (speed)

C) Calculate:

- A. Savart wheel rotates with a rate of 300 cycles per minute. A sound of frequency 600 HZ is produced when an elastic plate touches the gear teeth, calculate the number of gear teeth.

■ **Question 3**

A) Mention:

- 1- The signs of puberty in female
- 2- Measuring unit of sound intensity, frequency

B) What happens if:

- 1- Incidence of white light ray on one face of a glass prism.
- 2- Frequency of sound decreases less than 20 HZ
- 3- Light ray travels from air to glass
- 4- Frequency decreases to quarters (concerning wavelength)

■ **Question 4**

A) Write a scientific term:

- 1- Sound waves which accompany the blowing of storms
- 2- Two oval glands which secrete sperms

B) Give reason for

- 1- Petals of corolla are colored
 - 2- The seminal fluid is alkaline
 - 3- Water waves are transverse wave
 - 4- Period time \times frequency = 1
-

Model exam (2)

Question 1

(A): Choose the correct answer:

1- The distance between 2 successive crests or troughs is

(a-frequency. b-amplitude. c-periodic time d- wavelength

2-All the following are factors affecting sound intensity except

(a-amplitude b-medium density c-frequency d-wind direction)

3-The typical flower consists of whorls.

(a-three b-four c-five d-six)

4-If the frequency of an oscillating body is 2 Hz, so its periodic time =

a- (0.5 sec b-0.2 sec c-2 sec d-1 sec)

5-If the angle between the incident ray and the reflecting surface =40, so the angle of reflection =.....

(a-30° b-40° c-50° d-60°)

6-The right ovary in the human female produces a mature ovum every days.

(a-24 b-28 c-38 d-56)

(B): Give reasons for each of the following:

1-The voice of women is sharp while the voice of men is harsh.

.....

2-The product of multiplying the frequency and the periodic time of an oscillating body = 1

.....

3-The fallopian tubes are lined with cilia.

.....

(C): Mention the importance or the function of the following:

1-Ultrasonic waves (in medical field).

.....

2- Calyx.

.....

Question 2

(A): Put (v) or (X) in front of the following and correct the wrong statements:

- 1-The motion of the tuning fork is an oscillatory motion. ()
- 2-Large and coloured flowers that contain nectar, are pollinated by man. ()
- 3-Sound waves are mechanical and transverse waves. ()
- 4-Jacuzzi is used to treat nervous tension with cold water. ()

(B): Problem: Calculate the absolute refractive index of diamond given that the speed of light through it is 1.5×10^8 m/sec, knowing that the speed of light in air is 3×10^8 m/sec.

.....

(C): Compare between each of the following:

- 1-Transverse waves and longitudinal waves (according to the direction of medium particles)
- 2-Infra sonic waves and ultrasonic waves (according to the frequency)
- 3-Sperm and ovum (according to the size)

Question 3

(A): Write the scientific term for each in the following:

- 1-Maximum displacement made by oscillating body away from point of rest.
- 2-An external factor affecting the ear causing the sense of hearing.
- 3-The transfer of pollen grains from anther to the stigma of the flower.
- 4-Waves that need medium to travel and can't propagate in space.
- 5-The change in path of light ray when it passes from a transparent medium to another.
- 6-The female reproductive organ in the flower.

(B): What will Happen in the following:

- 1-The oscillating body moves away from its rest point (according to the velocity)
-

- 2-Light ray passes from air to water.
-

- 3-Ovary of the flower after fertilization.
-

(C):Problem: A wave of frequency = 512 Hz and its wavelength = 0.5 m, calculate the velocity of this wave.

.....

Question 4:

(A): Complete the following:

- 1-The complete oscillation containsdisplacements each of them is called
- 2-The measuring unit of sound intensity is while the unit of noise intensity is
- 3-The function of testis in man is to produceand hormone.
- 4-.....andare the two types of light reflection.

(B): What is meant by:

- 1- Sound intensity.
-

- 2-Fertilization in Human.
-

Model exam (3)

Question (1): -

A) Write the scientific term: -

1. The measuring unit of sound intensity. ()
2. The distance covered by the wave in one second. ()
3. A short stem where the leaves are modified into reproductive organs. ()
4. The area in the longitudinal wave, at which the medium particles are of the lowest density & pressure. ()
5. The tones accompanying the fundamental tone, but they are higher in pitch & lower in intensity. ()
6. A group of colored leaves in flowers, each is called petal. ()
7. The reflection of light rays in many directions when falling on a rough surface. ()
8. An oval-shaped gland that produces human male cells. ()

B) Give an example for: -

a) An oscillatory motion

.....

b) A male hormone

.....

C) Give reasons for: -

1. Ultrasonic waves have industrial uses.

.....

2. Increasing the periodic time of the oscillating body decreases its frequency.

.....

3. The pen appears broken in a cup of water.

.....

Question (2): -

A) Choose the correct answer: -

1. Ovary, style, and stigma are the structure of the.....

- a) corolla b) stamen c) carpel

2. If the angle between the incident light ray & the reflected light ray is 90° , so the angle of incidence equals

- a) 0° b) 30° c) 45°

3. The periodic time of an oscillating body which makes 240 oscillations in one-minute equals

- a) 1 sec. b) $1/4$ sec. c) 4 sec.

4. The human ear can hear sounds of frequency

- a) 50 KHz b) 30 KHz c) 300 Hz

5. Fertilization is the process of fusion of the male & female cells to form a

- a) Zygote b) sperm c) ovum

6. All of the following are factors affecting sound intensity except the

- a) amplitude of vibration b) medium density c) frequency

7. When a light ray travels from air to glass, it refracts the normal.

- a) near b) far from c) tangent to

8. The complete oscillation includes displacements.

- a) one b) two successive c) four successive

B) Give one difference between each of the following: -

a) Infrasonic & ultrasonic waves (concerning their frequencies)

b) Mechanical & Electromagnet waves (concerning their speeds)

c) Sperm & ovum (concerning their sizes)

C) A Problem: -

Savart's wheel rotates with a rate of 120 cycles per minute. A sound of frequency 300 Hz is produced when an elastic plate touches the teeth of one gear. Calculate the number of gear's teeth.

.....

Question (3): -

A) Complete the following statements: -

1. Longitudinal wave consists of &

2. After fertilization, the ovary grows forming the, while the ovule converts into the

3. Sharp tones have frequencies, while rough tones have frequencies.

4. The sperm consists of, middle part &

B) Mention one use/importance for each of the following: -

a) Calyx:

.....

b) Epididymis:

.....

c) Jacuzzi:

.....

C) Correct the underlined words: -

a) Gynoecium is the male organ of flower.

b) Particles of the medium vibrate along the direction of the wave propagation in the transverse wave.

c) The absolute refractive index of any material is always smaller than one.

Question (4): -

C) Put (v) or (x) & correct the wrong ones: -

1. The velocity of the oscillating body has a maximum value when it passes its rest position.
2. Palm trees are pollinated by air.
3. The sound intensity decreases when the source of sound touches an empty box.
4. Water waves are electromagnetic waves.

B) What happens when: -

1. The sound direction opposes the air flow direction.

.....

2. A light ray falls perpendicular on a reflecting surface.

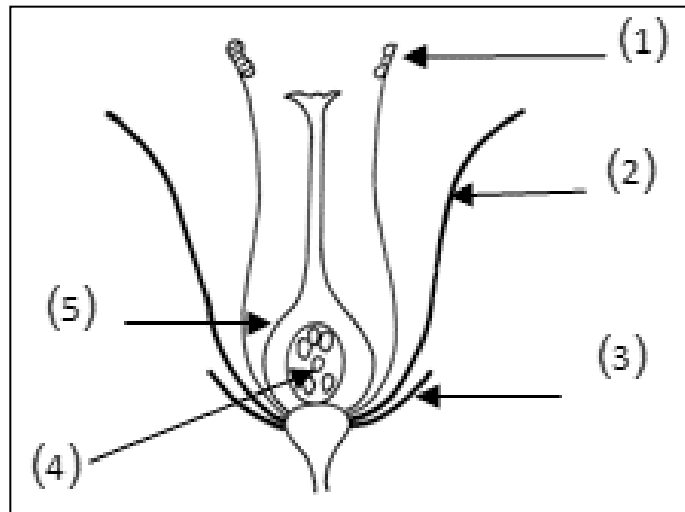
.....

3. The frequency of a wave is increased (concerning the wavelength) when its velocity is constant.

.....

(C): Study the opposite figure, then answer:

- 1- The function of number 1 is
- 2- The function of number 2 is
- 3- The function of number 5 is



Good luck & Have fun ☺

Model exam (1)

■ Question 1

C) Choose the correct answer

1-All the following are oscillatory motion except

a-simple pendulum b-tuning fork c-rotary bee

2-the speed of the pendulum ballthe further it moves away from its rest point

a-increases b-doubles c-decreases d-not affected

D) Define

1-Periodic time

■ Time taken by oscillating body to make one complete oscillation.

2-Sound

■ External factors affect ear causing sense of hearing.

3-Flower

■ A short stem whose leaves modified to form a reproductive organ.

4-Oscillatory motion

■ It's aperiodic motion of oscillating body around its rest point

■ Question 2

D) Put \sqrt or \times :

1-Oscillatory motion is a periodic motion (\sqrt)

2-Periodic time is directly proportional with frequency (\times)

E) Compare between:

1. Longitudinal wave and transverse wave according to direction of propagation.

Longitudinal wave	transverse wave
Along	Perpendicular

2. mechanical wave and electromagnetic wave (example only)

mechanical wave	electromagnetic wave
Sound	Light

3. sound and light (speed)

sound	light
low	high

F) Calculate:

B. Savart wheel rotates with a rate of 300 cycles per minute. A sound of frequency 600 HZ is produced when an elastic plate touches the gear teeth, calculating the number of gear teeth.

$$\blacksquare N = f \times t / d = 600 \times 60 / 300$$

■ Question 3

C) Mention:

1-The signs of puberty in female

■ A menstrual cycle, accumulation of fats in some body areas

2-Measuring unit of sound intensity, frequency

■ sound intensity = watt / meter² , frequency = hertz

D) What happens if:

1- Incidence of white light ray on one face of a glass prism.

■ Split into 7 spectrum colors.

2-Frequency of sound decreases less than 20 HZ

■ Changes into infrasonic wave

3-Light ray travels from air to glass

■ Refract near to normal

4-Frequency decreases to quarters (concerning wavelength)

■ Wavelength increases 4 times

■ Question 4

C) Write a scientific term:

1-Sound waves which accompany the blowing of storms

■ **Infrasonic wave.**

2-Two oval glands which secrete sperms

■ **Two testis.**

D) Give reason for

1-Petals of corolla are colored

■ **To attract insect to help in pollination**

2-The seminal fluid is alkaline

■ **To neutralize the acidity of urethra**

3-Wave waves are transverse wave

■ **Propagate perpendicular**

4-Period time \times frequency = 1

■ **Because periodic time = $1 / \text{frequency}$**

Model exam (2)

Question 1

(A): Choose the correct answer:

1- The distance between 2 successive crests or troughs is

(a-frequency. b-amplitude. c-periodic time **d- wavelength**)

2-All the following are factors affecting sound intensity except

(a-amplitude b-medium density **c-frequency** d-wind direction)

3-The typical flower consists of whorls.

(a-three **b-four** c-five d-six)

4-If the frequency of an oscillating body is 2 Hz, so its periodic time =

a- (**0.5 sec** b-0.2 sec c-2 sec d-1 sec)

5-If the angle between the incident ray and the reflecting surface = 40, so the angle of reflection =.....

(a-30° b-40° **c-50°** d-60°)

6-The right ovary in the human female produces a mature ovum every days.

(a-24 b-28 c-38 **d-56**)

(B): Give reasons for each of the following:

1-The voice of women is sharp while the voice of men is harsh.

Bec. Sound of women is high pitched (of high frequency) while Sound of men is low pitched (of low frequency).

2-The product of multiplying the frequency and the periodic time of an oscillating body = 1

Bec. the relation between them is an inverse relation or they are reciprocal to each other

3-The fallopian tubes are lined with cilia.

To push the ovum to the uterus.

(C): Mention the importance or the function of the following:

1-Ultrasonic waves (in medical field).

They break down kidney & ureter stones/They discover malignant tumors.

2- Calyx.

It protects the inner parts of the flower specially before blooming.

Question 2

(A): Put (✓) or (X) in front of the following and correct the wrong statements:

1-The motion of the tuning fork is an oscillatory motion. (✓)

2-Large and coloured flowers that contain nectar, are pollinated by man. (X)insects

3-Sound waves are mechanical and transverse waves. (X)longitudinal

4-Jacuzzi is used to treat nervous tension with cold water. (✓)

(B): Problem: Calculate the absolute refractive index of diamond given that the speed of light through it is 1.5×10^8 m/sec, knowing that the speed of light in air is 3×10^8 m/sec.

The absolute refractive index= (Velocity of light in air)/ (Velocity of light in diamond)
 $= 3 \times 10^8 / 1.5 \times 10^8 = 2$

(C): Compare between each of the following:

1-Transverse waves and longitudinal waves (according to the direction of medium particles)

Transverse waves	Longitudinal waves
Perpendicular	Along/same direction

2-Infra sonic waves and ultrasonic waves(according to the frequency)

Infrasonic waves	Ultrasonic waves
Its F is less than 20 Hz	Its F is more than 20000 Hz

3-Sperm and ovum (according to the size)

Sperm	Ovum
Very small.	Relatively large (as sesame seed size).

Question 3

(A): Write the scientific term for each in the following:

- 1-Maximum displacement made by oscillating body away from point of rest. **Amplitude**
- 2-An external factor affecting the ear causing the sense of hearing. **Sound**
- 3-The transfer of pollen grains from anther to the stigma of the flower. **Pollination**
- 4-Waves that need medium to travel and can't propagate in space. **Mechanical waves**
- 5- The change in path of light ray when it passes from a transparent medium to another. **Light refraction**
- 6-The female reproductive organ in the flower. **Gynoecium**

(B): What will Happen in the following:

- 1-The oscillating body moves away from its rest point (according to the velocity)
Its velocity decreases.
- 2-Light ray passes from air to water.
It refracts near the normal.
- 3-Ovary of the flower after fertilization.
It becomes a fruit.

(C):Problem: A wave of frequency = 512 Hz and its wavelength =0.5 m, calculate the velocity of this wave.

$$v = F \times \lambda = 512 \times 0.5 = 256 \text{ m/sec.}$$

Question 4:

(A): Complete the following:

- 1-The complete oscillation contains 4 displacements each of them is called **amplitude**
- 2-The measuring unit of sound intensity is **watt/m²** while the unit of noise intensity is **Decibel**
- 3-The function of testis in man is to produce **sperms** and **testosterone** hormone.
- 4-**Regular reflection** and **irregular reflection** are the two types of light reflection.

(B): What is meant by:

- 1- Sound intensity.

The property by which the ear can distinguish between strong & weak sounds.

- 2-Fertilization in Human.

It is the fusion of the nucleus of male gamete (sperm) with the nucleus of female gamete (ova) to form a zygote.

Model exam (3)

Question (1): -

A) Write the scientific term: -

1. The measuring unit of sound intensity. (**watt/m²**)
2. The distance covered by the wave in one second. (**Wave velocity**)
3. A short stem where the leaves are modified into reproductive organs. (**Flower**)
4. The area in the longitudinal wave, at which the medium particles are of the lowest density & pressure. (**Rarefaction**)
5. The tones accompanying the fundamental tone, but they are higher in pitch & lower in intensity. (**Harmonic tones**)
6. A group of colored leaves in flowers, each is called petal. (**Corolla**)
7. The reflection of light rays in many directions when falling on a rough surface. (**Irregular reflection**)
8. An oval-shaped gland that produces human male cells. (**2 Testes**)

B) Give an example for: -

- a) An oscillatory motion **The pendulum/ the tuning fork**
- b) A male hormone **Testosterone**

C) Give reasons for: -

1. Ultrasonic waves have industrial uses.

Bec. they are used in sterilization of food, water & milk.

2. Increasing the periodic time of the oscillating body decreases its frequency.

Bec. they are inversely proportional to each other.

3. The pen appears broken in a cup of water.

Due to the light refraction.

Question (2): -

A) Choose the correct answer: -

1. Ovary, style, and stigma are the structure of the.....

a) corolla b) stamen **c) carpel**

2. If the angle between the incident light ray & the reflected light ray is 90° , so the angle of incidence equals

b) 0° b) 30° **c) 45°**

3. The periodic time of an oscillating body which makes 240 oscillations in one-minute equals

b) 1 sec. **b) $1/4$ sec.** c) 4 sec.

4. The human ear can hear sounds of frequency

a) 50 KHz b) 30 KHz **c) 300 Hz**

5. Fertilization is the process of fusion of the male & female cells to form a

a) zygote b) sperm c) ovum

6. All of the following are factors affecting sound intensity except the

a) amplitude of vibration b) medium density **c) frequency**

7. When a light ray travels from air to glass, it refracts the normal.

a) near b) far from c) tangent to

8. The complete oscillation includes displacements.

a) one b) two successive **c) four successive**

B) Give one difference between each of the following: -

a) Infrasonic & ultrasonic waves (concerning their frequencies)

Infrasonic waves	Ultrasonic waves
Its F is less than 20 Hz	Its F is more than 20000 Hz

b) Mechanical & Electromagnet waves (concerning their speeds)

Mechanical waves	Electromagnetic waves
Their speed is relatively low.	Their speed is high.

c)Sperm & ovum (concerning their sizes)

Sperm	Ovum
Very small.	Relatively large (as sesame seed size).

C) A Problem: -

Savart's wheel rotates with a rate of 120 cycles per minute. A sound of frequency 300 Hz is produced when an elastic plate touches the teeth of one gear. Calculate the number of gear's teeth.

$$n = F \times t/d = 300 \times 60/120 = 150 \text{ teeth}$$

Question (3): -

A) Complete the following statements: -

1. Longitudinal wave consists of **compressions&rarefactions**.
2. After fertilization, the ovary grows forming the **fruit**, while the ovule converts into the **seed**.
3. Sharp tones have **high** frequencies, while rough tones have **low** frequencies.
4. The sperm consists of **head**, middle part &**tail**.

B) Mention one use/importance for each of the following: -

a) Calyx:

It protects the inner parts of the flower specially before blooming.

b) Epididymis:

It stores the sperms & the final stages of the growth & development of sperms occur in it

c) Jacuzzi:

It treats sprains & cramps with hot water & nervous tension with cold water.

C) Correct the underlined words: -

a) Gynoecium is the male organ of flower. **Androecium**

b) Particles of the medium vibrate along the direction of the wave propagation in the transverse wave. **longitudinal**

c) The absolute refractive index of any material is always smaller than one. **greater than**

Question (4): -

A) Put (v) or (x) & correct the wrong ones: -

1. The velocity of the oscillating body has a maximum value when it passes its rest position. (v)
2. Palm trees are pollinated by air. (X) **man**
3. The sound intensity decreases when the source of sound touches an empty box. (X) **increases**
4. Water waves are electromagnetic waves. (X) **mechanical**

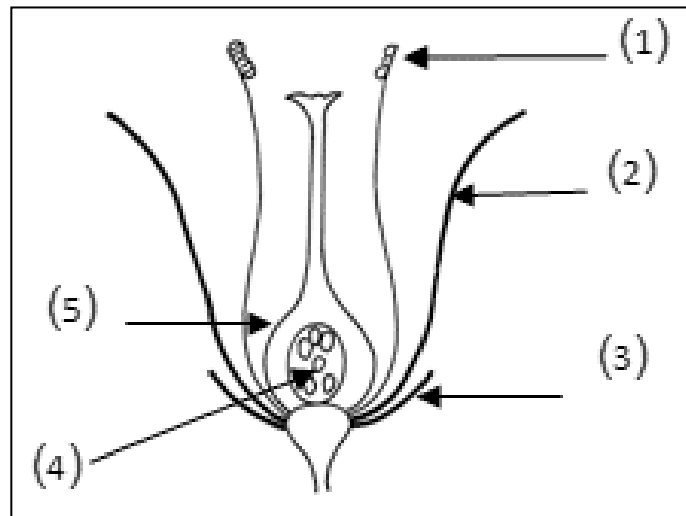
B) What happens when: -

1. The sound direction opposes the air flow direction.
The sound intensity decreases.
2. A light ray falls perpendicular on a reflecting surface.
It will reflect on itself.
3. The frequency of a wave is increased (concerning the wavelength) when its velocity is constant.
Its wavelength will decrease.

(C): Study the opposite figure, then answer:

- 1- The function of number 1 is **to produce pollen grains.**

- 2- The function of number 2 is **to attract insects** or **to protect the reproductive organs**.
- 3- The function of number 5 is **to produce ovules**.



Good luck & have fun 😊



Answer all of the following questions:

First Question:

A) Complete the following sentences:

- 1- The amplitude equals of a complete oscillation.
- 2- The sound intensity is measured in
- 3- After fertilization in plants, the ovum is changed into
- 4- The least deviation of the spectrum colors is

B) Correct the underlined words:

- 1- The incubation period of the syphilis disease is from 2 : 3 days
- 2- In longitudinal waves, the medium particles vibrate perpendicular to the wave propagation direction.
- 3- Absolute refractive index of a medium is always greater than four.

C) Mention one example for each one of the following:

- 1- A plant reproduces by grafting.
- 2- Unisexual flower.

Second Question:

A) Write the scientific term that expresses each of the following:

- 1- Change in the light direction when it passes from one transparent medium to another different in optical density.
- 2- The transfer of the pollen grains from the anther to the stigma of the same flower or another flower on the same plant.
- 3- The motion which is done by the oscillating body in a period of time when it passes in its path by a fixed point two successive times in the same direction.

- 4- A medium that allows by passing a part of light through it and absorbs the other part.

B) Cross the odd word or sentence out then mention what joins the remaining:

- 1- Sound intensity – medium density – wind direction – frequency
- 2- Ovary – testis – uterus – fallopian tube
- 3- Calyx – corolla – corn – carpal

C) If the number of rotations occurred by a gear of Savart's wheel is 300

cycles through one minute, Calculate the frequency of the produced

sound knowing that the number of gear's teeth equals 60 teeth.

Third Question:

A) Put (✓) in front of correct statement or (×) in front of wrong ones:

1- The frequency is the number of complete oscillations done by the

oscillating body in one second.

()

2- Testosterone hormone is responsible for appearance the female

secondary sexual characters.

()

3- The frequency of infrasonic waves exceed above 20 hertz.

()

4- The light intensity for a surface increases by increasing the distance

between the surface and the light source.

()

B) Choose the correct answer from between the brackets:

1- When the oscillating body makes quarter oscillation through one second so its frequency equals hertz.

- a) $\frac{1}{4}$ b) 4 c) 2 d) $\frac{1}{2}$

2- The Sonar device produces Waves, their frequency increases above 20 KHz

- a) sonic b) strong c) ultrasonic d) weak

3- The male flower contains floral whorls.

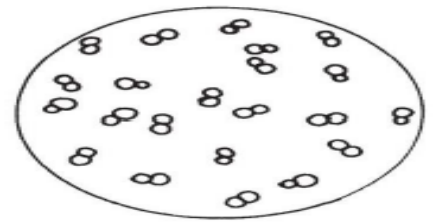
- a) three b) four c) five d) six

C) The opposite figure represents a microbe that causes one of the

diseases of the female reproductive system

1- Mention the name of the microbe?

2- What is the disease caused by this microbe?



Fourth Question:

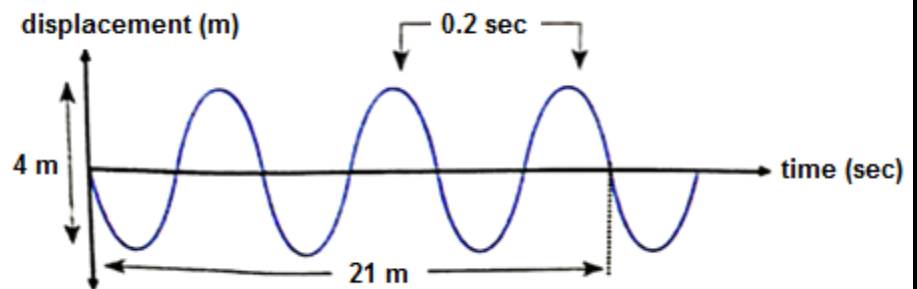
A) Choose from column (B) that suits from column (A)

(A)	(B)
1- The cell of a sperm is	a) distinguishes sharp or rough sounds through the human ear
2- The cell of an ovum is	b) small in size and mobile
3- Sound pitch property	c) large in size and mobile
4- Sound type property	d) large in size and static
	e) distinguishes sounds according to the

	nature of the sound even if they are equal in pitch and intensity through the human ear.
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B) From the opposite figure, Calculate

- 1- Wavelength
- 2- Frequency
- 3- Velocity of wave propagation

**C) Mention one use for each one of the following:**

- 1- Ear plugs.
- 2- Resonance box.

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

